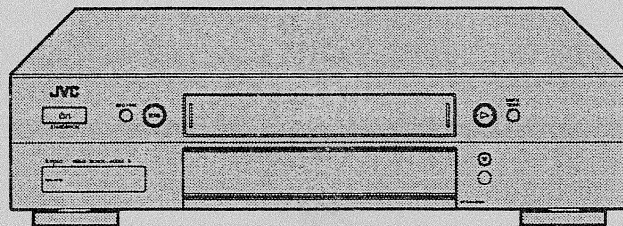


JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S9500EK



TIME JOG & SCAN

VIDEO *Plus+*

Hi-Fi **S****VHS**
625

SPECIFICATIONS

GENERAL

Power requirement	: AC 220 – 240 V~, 50/60 Hz
Power consumption	
Power on	: 26 W
Power off	: 5.5 W
Temperature	
Operating	: 5°C to 40°C
Storage	: -20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 437 x 109 x 339 mm
Weight	: 5.0 kg
Format	: S-VHS/VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines/50 fields
Recording system	: DA4 (Double Azimuth) helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines (VHS) 400 lines (S-VHS)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin scart connectors (IN/OUT x 1, IN x 1) RCA connectors (VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1) S-Video connectors (IN x 1, OUT x 1)

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	: UHF channels 21 – 69 (470 – 862 MHz)
Aerial output	: UHF channels 22 – 69 (Adjustable)
Memory backup time	: Approx. 10 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "AA" battery x 2, S-Video cable, Connector cover (for front panel connectors)
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Specifications shown are for SP mode unless otherwise specified.

E. & O.E. Design and specifications subject to change without notice.

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Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorised in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits.
2. Any unauthorised design alterations or additions will void the manufacturer's guarantee ; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.
3. Essential safety critical components are identified by () on the Parts List and by shading on the schematics, and must never be replaced by parts other than those listed in the manual. please note however that many electrical and mechanical parts in the product have special safety related characteristics. These characteristics are often not evident from visual inspection. Parts other than specified by the manufacturer may not have the same safety characteristics as the recommended replacement parts shown in the Parts List of the Service manual and may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

Warning

1. Service should be performed by qualified personnel only.
2. This equipment has been designed and manufactured to meet international safety standards.
3. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
4. Repairs must be made in accordance with the relevant safety standards.
5. It is essential that safety critical components are replaced by approved parts.
6. If mains voltage selector is provided, check setting for local voltage.

INSTRUCTIONS

2

SAFETY FIRST

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT

- Please read the various precautions on p. 2 – 4 of this instruction manual before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

IMPORTANT

Connection to the mains supply in the United Kingdom.

DO NOT cut off the mains plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain a proper safety approved extension lead/adaptor or consult your dealer.

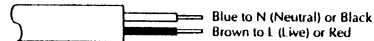
In the unlikely event of the plug fuse failing be sure to replace the fuse only with an identical approved type, as originally fitted, and to replace the fuse cover. If the fuse fails again consult your nearest JVC dealer.

If nonetheless the mains plug is cut off remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.

If this product is not supplied fitted with a mains plug then follow the instructions given below:

DO NOT make any connection to the Larger Terminal coded E or Green.

The wires in the mains lead are coloured in accordance with the following code:



If these colours do not correspond with the terminal identifications of your plug, connect as follows:

Blue wire to terminal coded N (Neutral) or coloured Black.

Brown wire to terminal coded L (Live) or coloured Red.

If in doubt — consult a competent electrician.



- Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".
- Video Plus+ and PlusCode are trademarks of Gemstar Development Corporation. The Video Plus+ system is manufactured under license from Gemstar Development Corporation.
- Certain audio features of this product manufactured under a license from Desper Products, Inc. Spatializer® is a trademark owned by Desper Products, Inc.

3

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

The STANDBY/ON button does not completely shut off mains power from the unit, but switches operating current on and off. "⏻" shows electrical power standby and "I" shows ON.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Failure to heed the following precautions may result in damage to the recorder, remote control or video cassette.

1. **DO NOT** place the recorder . . .

- ... in an environment prone to extreme temperatures or humidity.
- ... in direct sunlight.
- ... in a dusty environment.
- ... in an environment where strong magnetic fields are generated.
- ... on a surface that is unstable or subject to vibration.

2. **DO NOT** block the recorder's ventilation openings.

3. **DO NOT** place heavy objects on the recorder or remote control.

4. **DO NOT** place anything which might spill on top of the recorder or remote control.

5. **AVOID** violent shocks to the recorder during transport.

MOISTURE CONDENSATION

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder turned on for a few hours to let the moisture dry.

ABOUT HEAD CLEANING

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.

Some Do's And Don'ts On The Safe Use Of Equipment

This equipment has been designed and manufactured to meet international safety standards but, like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured.

- DO** read the operating instructions before you attempt to use the equipment.
- DO** ensure that all electrical connections (including the mains plug, extension leads and interconnections between pieces of equipment) are properly made and in accordance with the manufacturer's instructions. Switch off and withdraw the mains plug when making or changing connections.
- DO** consult your dealer if you are ever in doubt about the installation, operation or safety of your equipment.
- DO** be careful with glass panels or doors on equipment.
- DON'T** continue to operate the equipment if you are in any doubt about it working normally, or if it is damaged in any way — switch it off, withdraw the mains plug and consult your dealer.
- DON'T** remove any fixed cover as this may expose dangerous voltages.
- DON'T** leave equipment switched on when it is unattended unless it is specifically stated that it is designed to be switched on after a period of time. In the event of a fire, switch off the equipment and make sure that your family knows how to do this. Special arrangements may need to be made for infant or handicapped people.
- DON'T** use equipment near flammable materials or liquids so that you are distracted from the requirements of good safety. It is only good to switch the equipment off when not in use.
- DON'T** listen to headphones at high volume, as such use can permanently damage your hearing.
- DON'T** obstruct the ventilation of the equipment, for example with curtains or soft furnishings. Electrical fires will arise if equipment overheats in the life of the equipment.
- DON'T** use make shift stands and if VCR has legs with screw covers — to ensure complete safety always fit the manufacturer's approved stand or legs with the fittings provided according to the picture above.
- DON'T** allow children to play on or with the equipment or its controls.

ABOVE ALL ...

NEVER touch any one especially children or persons, thing, wire, hole or slot on any, with a finger, in the case — this could result in a fatal electric shock.

NEVER place or take a bath with electrical equipment of any kind — it is better to be safe than sorry.

► Dear Customer,

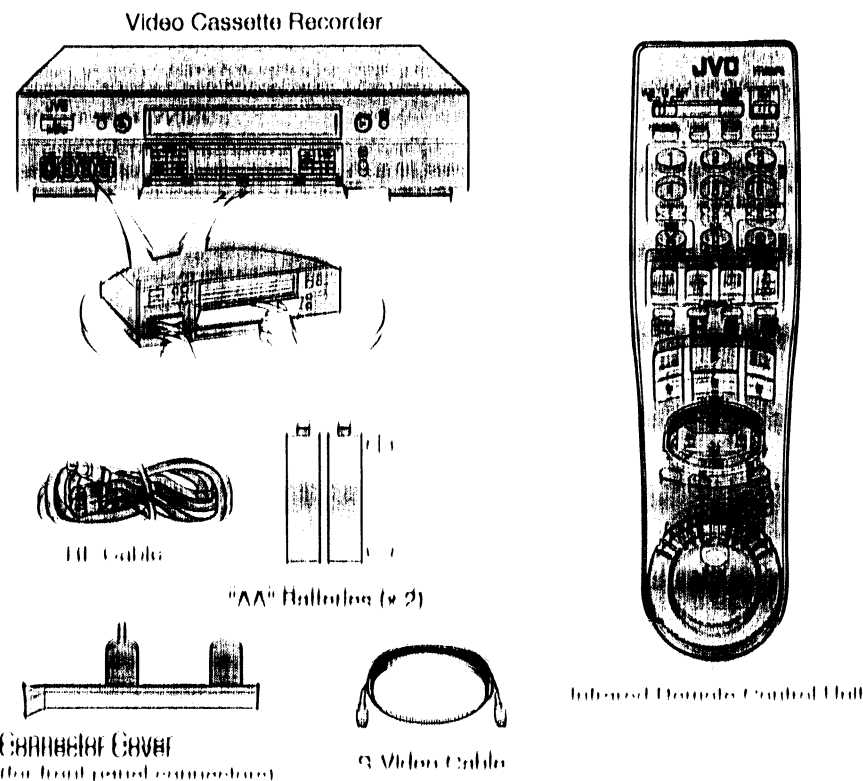
Thank you for purchasing this JVC Video Cassette Recorder.

Please use this **QUICK SET UP GUIDE** to help you to set up your video cassette recorder.

STEP
1

CHECK THE CONTENTS

CHECK ALL THE CONTENTS SHOWN BELOW

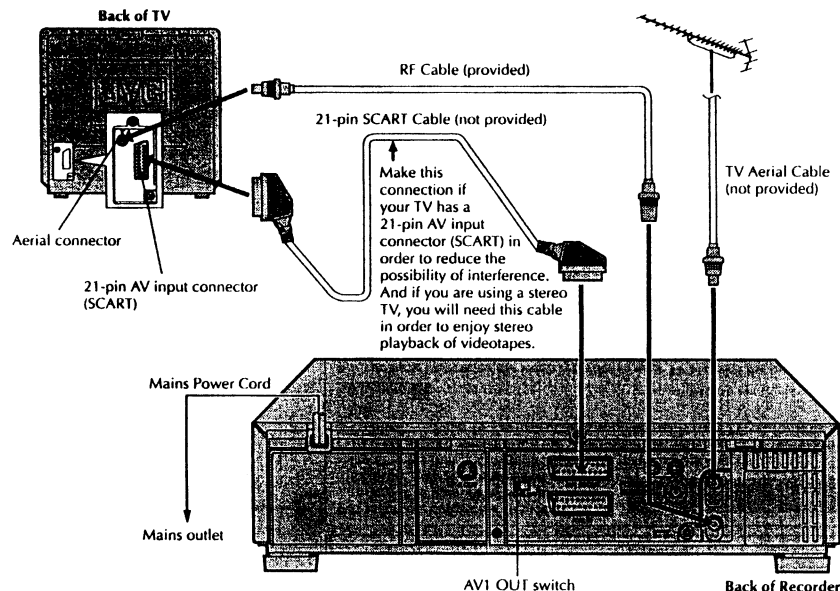


► You are now ready to install your video cassette recorder.

INSTALLATION

CONNECT VIDEO RECORDER TO TV

► Place the recorder on a stable, flat surface.



RF CONNECTION

To connect to a TV with NO 21-pin AV input connector (SCART) ...

- 1- Disconnect the TV aerial cable from the TV.
- 2- Connect the TV aerial cable to the ANT. IN jack on the rear panel of the recorder.
- 3- Connect the provided RF cable between the RF OUT jack on the rear panel of the recorder and the TV's aerial connector.

AV CONNECTION

To connect to a TV with 21-pin AV input connector (SCART) ...

- 1- Connect the aerial, recorder and TV as per "RF CONNECTION".
- 2- Connect an optional SCART cable between the AV1 IN/OUT socket on the rear panel of the recorder and the TV's 21-pin AV input connector (SCART).
- 3- Set the AV1 OUT switch to the appropriate position. See "AV1 OUTPUT SIGNAL SELECTION FOR AV CONNECTION" below.

AV1 OUTPUT SIGNAL SELECTION FOR AV CONNECTION

The AV1 IN/OUT connector accepts only a composite signal (regular video signal), but can deliver either a composite video signal or a Y/C signal (a signal in which the luminance and chrominance signals are separated) according to the setting of the rear panel AV1 OUT switch.

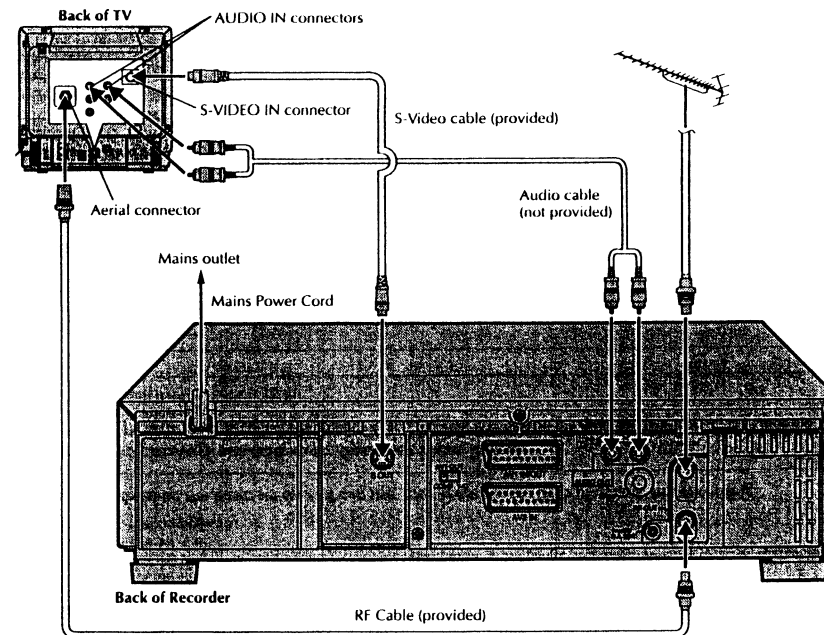
- If your TV's 21-pin AV input connector (SCART) is compatible only with the regular video signal, set this switch to COMP.
- If your TV's 21-pin AV input connector (SCART) is compatible with the Y/C signal, set this switch to Y/C. You can obtain high-quality S-VHS pictures. (For connection, be sure to use a 21-pin SCART cable that is compatible with the Y/C signal.)

NOTES:

- Set your TV to the VIDEO (or AV), Y/C, or RGB mode according to the type of your TV's SCART connector.
- For switching the TV's mode, refer to the instruction manual of your television.
- To obtain high-quality S-VHS pictures, you can also use the S-VIDEO CONNECTION described on page 7.

ATTENTION

- Do NOT Plug the mains power cord into a mains outlet until all connections are completed.
- Do NOT press the ψ /I button on the recorder or on the remote control to turn on the recorder's power before you start the Auto Set Up procedure described on page 8.



S-VIDEO CONNECTION

To connect to a TV with S-VIDEO/AUDIO IN connectors ...

- 1- Connect the aerial, recorder and TV as per "RF CONNECTION" (pg. 6).
- 2- Connect the recorder's S OUT connector to the TV's S-VIDEO IN connector.
- 3- Connect the recorder's AUDIO OUT connectors to the TV's AUDIO IN connectors.

NOTES:

- You can obtain high-quality S-VHS pictures.
- If your television is not stereo-capable, use the recorder's AUDIO OUT connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction. (pg. 45)
- To operate the recorder with your TV using the S-VIDEO connection, set your TV to the VIDEO (or AV) mode.
- For switching the TV's mode, refer to the instruction manual of your television.

ATTENTION

- Do NOT Plug the mains power cord into a mains outlet until all connections are completed.
- Do NOT press the ψ /I button on the recorder or on the remote control to turn on the recorder's power before you start the Auto Set Up procedure described on page 8.

AFTER YOU FINISH THIS STEP ►

Go to Step 3 – AUTO SET UP

STEP

3

AUTO SET UP

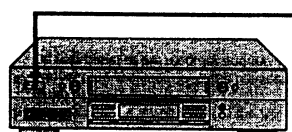
SET THE TUNER CHANNELS, CLOCK, GUIDE PROGRAM NUMBERS AND VIDEO CHANNEL*

The Auto Set Up function sets the tuner channels, clock, Video Plus+ assigned Guide Program numbers and the video channel* automatically the first time the ψ/I button on the recorder or on the remote is pressed to turn on the recorder after the mains power cord has been plugged into a mains outlet.

* Useful if you have connected the video recorder to your TV via RF connection (pg. 6). Video Channel (RF output channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.

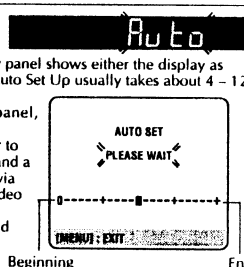
Before performing the following procedure, make sure that:

- the TV aerial cable is connected to the recorder.
- the mains power cord is plugged into the mains outlet.
- batteries have been installed in the remote control.

1 Press ψ/I .

"Auto" appears on the display panel and blinks; do NOT press any button on the recorder or remote control until the display panel shows either the display as illustrated below in item 2 or "----". Auto Set Up usually takes about 4 – 12 minutes; the duration varies by area.

- If "----" appears on the display panel, refer to next page.
- If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection) or via the provided RF cable, the provided S-Video cable and an audio cable (S-VIDEO connection) and if the TV is turned on and set to its AV mode, the AUTO SET screen will appear.



2

- If you have connected the video recorder to your TV via the provided RF cable only (RF connection) —

the channel that is shown on the display panel is your Video Channel. To view picture signals from the video recorder, set your TV to the Video Channel. — Refer to the instructions supplied with your TV set for how to do this.

Go to item 3.

- If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection), or via the provided RF cable, the provided S-Video cable and an audio cable (S-VIDEO connection) —

you do not need the video channel so you have to set the video channel to off. Press TV PROG — until the display panel shows "OUT—" to set the Video Channel to off.

To view picture signals from the video recorder, set your TV to its AV mode. — Refer to the instructions supplied with your TV set for how to do this.

Go to item 3.

3

Press OK to finish Auto Set Up and refer to next page to check the results.

ATTENTION

Once you have performed Auto Set Up, all the stored stations, Guide Program numbers and the video channel remain in the recorder's memory and the recorder will not perform Auto Set Up again. If there is a power cut and the recorder's memory backup expires you only need to reset the clock. (pg. 55).

If you have moved to a different area, perform each setting as required.

- Video Channel setting (for RF connection users) pg. 46
- Tuner setting pg. 48
- Clock setting pg. 55

If a new station begins broadcasting in your area, perform tuner setting (pg. 48) and, if necessary, video channel setting (pg. 46).

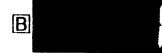
NOTES:

- Auto channel set function takes place first; it assigns automatically all receivable stations in your area.
- Auto clock set function sets the clock automatically.
- During auto channel set, the recorder recognizes each station name of the detected stations and stores them in the recorder's memory; then automatically sets the Video Plus+ assigned Guide Program number for those stations according to the broadcast area.
- For RF connection users: The video recorder detects the channels which are not occupied by local stations and selects one channel automatically for your Video Channel that is located in the middle of more than 5 vacant channels.
- If there is power cut or if you press ψ/I or MENU while Auto Set Up is in progress, Auto Set Up will be interrupted; be sure to turn off the recorder power once and press ψ/I to turn the power back on in order to re-start Auto Set Up.

Auto Set Up results appear on the display panel



When both auto channel set and auto clock set have been completed successfully the correct current time will be displayed after the OK button is pressed in item 3 on page 8.



When auto channel set has been completed successfully but auto clock set has not, "(PR)1" will be displayed after the OK button is pressed in item 3 on page 8.



When neither auto channel set nor auto clock set has been completed successfully, "----" will be displayed.

* You can check if the Guide Program numbers have been set correctly when you perform Video Plus+ Timer Programming (pg. 14); if the correct preset position number is displayed in step 3, this confirms that the Guide Program number for the PlusCode number you enter in step 2 has been set correctly.

A If both auto channel set and auto clock set have been performed successfully:

1 Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the TV PROG button(s).

- If station names (ID — pg. 53) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds each time the recorder is tuned to a different station.
- If you want to set the tuner manually such as to add or skip channels, to change preset positions, or to set or change station names, see pages 50 – 52.

Now you have finished the basic set up and can use your recorder for both playback and recording.

B If auto channel set has succeeded but auto clock set has not:

1 Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the TV PROG button(s).

- If station names (ID — pg. 53) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds each time the recorder is tuned to a different station.
- If you want to set the tuner manually such as to add or skip channels, to change preset positions, or to set or change station names, see pages 50 – 52.

2 Perform "Clock Set" on page 55.

Now you have finished the basic set up and can use your recorder for both playback and recording.

C If both auto channel set and auto clock set have failed:

1 Make sure the TV aerial cable is connected properly to the recorder and turn off the recorder power once, then turn the recorder power back on again.

- The recorder will try Auto Set Up again.

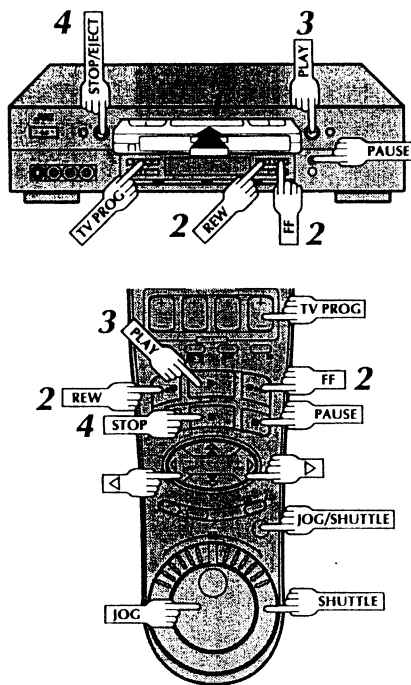
IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using Video Plus+, the recorder will record a TV programme of a different station. When programming the timer using Video Plus+, be sure to check that the preset position corresponding to the broadcasting station you wish to record has been selected (pg. 14, "Video Plus+ Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations which have an unacceptable picture — "Delete A Channel" on page 51.
- If any of the above problems occur, refer to pages 50 – 52 to input station names (pg. "Set Stations") or delete unnecessary stations (pg. "Delete A Channel"). You can also change station preset positions (pg. "Change Station Preset Position").
- For RF connection users: In certain reception conditions, the Video Channel may not be set correctly and interference may appear in the TV picture while the recorder's power is on. Set your Video Channel manually, pg. 46, "Video Channel Set".

If you have any difficulty with the above procedures call the JVC Customer Service Hot Line on 0181 208 7654

Playback

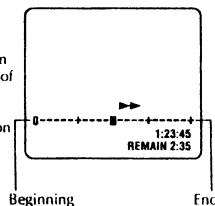
Turn on the TV and select the VIDEO channel (or AV mode).



Tape Position Indicator

The tape position indicator appears on screen when, from the Stop mode, you press **FF**, **REW** or perform an Index Search. The position of "■" in relation to "0" (beginning) or "+" (end) shows you where you are on the tape.

"O.S.D." (pg. 42) must be set to "ON", or the indicator will not appear.



NOTE:

Depending on the type of tape used, there may be times when the indication is not correct.

The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.

LOAD A CASSETTE

1 Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is point toward the recorder. Don't apply too much pressure when inserting.

- The recorder power comes on automatically and the counter is reset to 0:00:00.
- If the record safety tab has been removed, playback begins automatically.

FIND PROGRAMME START POINT

2 If the tape is advanced past the start point, press **REW**. To go forward, press **FF**.

START PLAYBACK

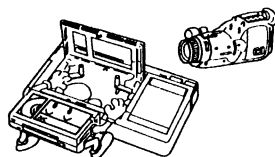
3 Press **PLAY**. "BEST" appears blinking in the recorder's display panel during automatic tracking (pg. 20)

- Playback picture quality of LP recordings will not be as high as SP recordings.

STOP PLAYBACK

4 Press **STOP** on the remote or **STOP/EJECT** on the recorder's front panel. Then press **STOP/EJECT** to remove the cassette.

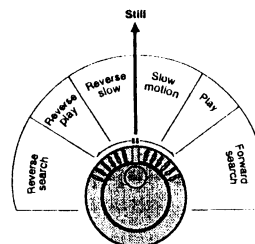
Usable cassettes



- Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.
- This video recorder can record on regular VHS and Super VHS cassettes. While only VHS signals can be recorded on regular VHS cassettes, both VHS and Super VHS signals can be recorded and played back using Super VHS cassettes.

NOTES:

- Refer to the **SHUTTLE** ring illustration below as you read the following procedures.
- To use the remote control's **JOG** dial or **SHUTTLE** ring, press **JOG/SHUTTLE** first so that the button lights. Pressing the button again turns off the light.



Still Picture/Frame-By-Frame Playback

1 PAUSE DURING PLAYBACK

Press **PAUSE**.

- During still picture, the sound from the previous 3 seconds (approx.) will be played back repeatedly (provided there was at least 6 seconds of normal playback prior to engaging the still picture mode).
- "TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard. (pg. 25)

2 ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the **JOG** dial to the right for forward frame-by-frame playback, or to the left for reverse frame by frame playback.

OR

Press **PAUSE**. Each time **PAUSE** is pressed the tape will advance one frame.

OR

Press **<** or **>**. Each time one of these buttons is pressed the tape will move one frame in the direction of the arrow.

To resume normal playback, press **PLAY**.

ATTENTION

- The operations by the remote control's **JOG** dial/**SHUTTLE** ring do not include TimeScan (pg. 24).
- In the high-speed search, still, slow-motion or frame-by-frame playback mode:
 - the picture will be distorted.
 - noise bars will appear.
 - there will be a loss of colour with a tape recorded in LP mode.
- Picture may not appear during high-speed search with a tape recorded in LP mode.
- When normal playback resumes from search, still, slow motion or frame-by-frame playback, the picture may jitter vertically momentarily depending on the type of TV being used.

Slow Motion

1 ACTIVATE SLOW-MOTION PLAYBACK

During playback or still picture, turn the **SHUTTLE** ring to the right for forward slow motion, or to the left for reverse slow motion (refer to the illustration to the left).

OR

During still picture, press and hold **PAUSE** for 2 seconds, then release. Press and release again to return to still picture.

OR

During still picture, press and hold **<** or **>**. Release to return to still picture.

To resume normal playback, press **PLAY**.

NOTE:

For Time Jog, see page 25.

Variable-Speed Search

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring to the right for forward variable-speed search, or to the left for reverse variable-speed search (refer to the illustration to the above left).

To resume normal playback, press **PLAY**.

NOTE:

Variable-speed search with TimeScan (pg. 24) can be used by pressing the remote control's **<** or **>** button.

High-Speed (Turbo) Search

1 ACTIVATE HIGH-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring all the way to the right for forward high-speed search, or to the left for reverse high-speed search. Releasing **SHUTTLE** resumes still picture playback.

OR

During playback or still picture, press **FF** for forward high-speed search, or **REW** for reverse high-speed search.

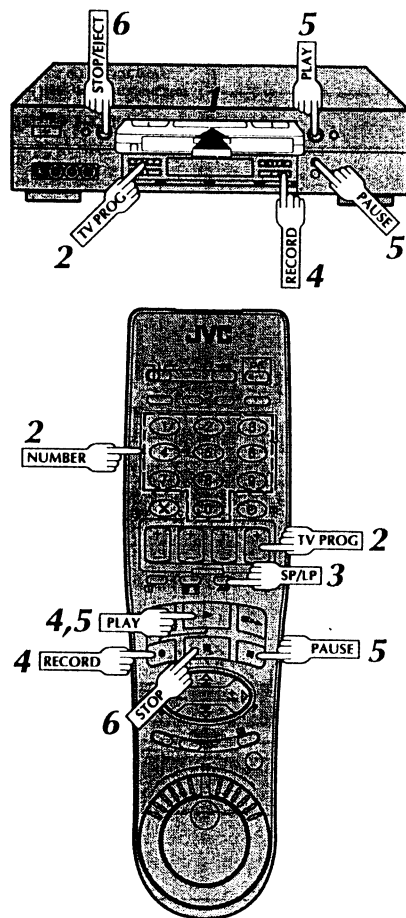
To resume normal playback, press **PLAY**.

NOTE:

For short searches, press and hold **FF** or **REW** for more than 2 seconds during playback or still picture. When released, normal playback resumes.

Recording

Turn on the TV and select the VIDEO channel (or AV mode).



Recording Resume Function

If there is a power outage during recording (or Instant Timer Recording or timer recording), the recording will resume automatically when power is restored to the recorder unless the recorder's memory backup has expired.

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. You can "capture" a TV programme using your video recorder.

LOAD A CASSETTE

Insert a cassette with the record safety tab intact (See below).

- The counter is reset to 0:00:00 and the recorder power comes on automatically.

CHOOSE A PROGRAMME

Press TV PROG +/- or the NUMBER keys to select the preset you wish to record.

SET TAPE SPEED

Press SP/LP (IIII). Check the SP/LP indicator on the recorder display panel to confirm the selected tape speed.

- Picture quality of LP recordings will not be as high as on SP recordings.

START RECORDING

Press and hold RECORD and press PLAY on the remote control, or press RECORD on the recorder.

B.E.S.T. takes place at the beginning of both the first SP and the first LP recording after inserting the cassette (see pg. 20).

- You can not change the preset whilst recording is in progress. To change the preset, see step 5.

PAUSE/RESUME RECORDING

Press PAUSE. Press PLAY to resume recording.

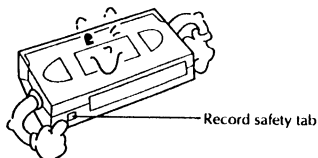
- During the Record Pause mode, you can change the preset by pressing the TV PROG +/- buttons or the NUMBER keys.

STOP RECORDING

Press STOP on the remote control or STOP/EJECT on the recorder. Then press STOP/EJECT to remove the cassette.

Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.

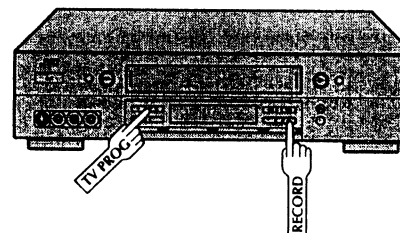


Record One Programme While Watching Another

1 SELECT PRESET TO WATCH

Once recording is in progress, all you need to do is to set the preset controls on the TV for the station you wish to view.

- The programme selected with the TV's preset controls appears on the TV screen while the one selected with the recorder's TV PROG buttons is recorded on the tape.



Elapsed Recording Time Indication

You can check the exact time of a recording.

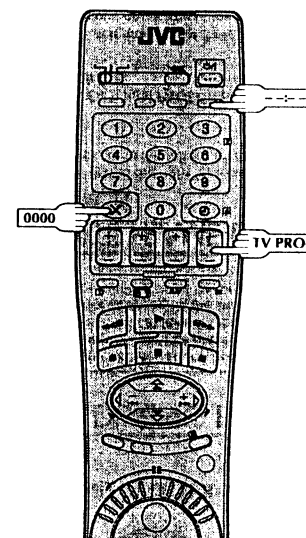
1 SET COUNTER DISPLAY

Press ---- until a counter reading appears on the display panel.

2 RESET COUNTER

Press 0000 before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs.



Instant Timer Recording (ITR)

This easy method allows you to record for any length of time from 30 mins. to 6 hours (selectable in 30 min. increments), and shuts off the recorder after recording is finished.

1 START RECORDING

Press RECORD on the recorder.

2 ENGAGE ITR MODE

Press RECORD again. "ITR" blinks and 0:30 appears on the front display panel.

3 SET RECORDING DURATION

If you want to record for more than 30 minutes, press RECORD to extend the time. Each press extends recording time by 30 minutes.

NOTE:

You can only perform ITR using the RECORD button on the recorder's front panel.

Tape Remaining Time

1 DISPLAY REMAINING TIME

Press ---- until the time remaining on the tape appears.

- The display panel shows the tape remaining time with "TMR" displayed.
- By pressing the ---- button, you can change the display to show the counter reading, preset position*, clock time or tape remaining time.
- *Preset position is not displayed during playback.

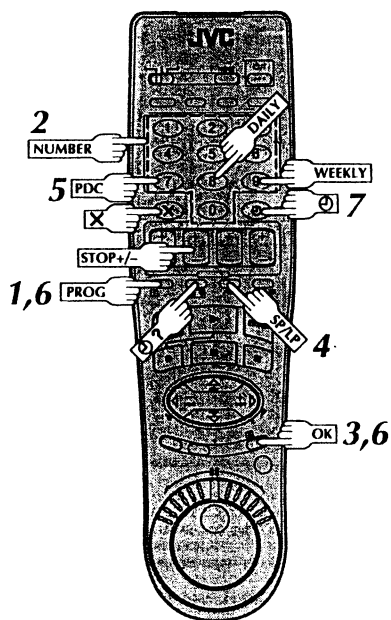
NOTE:

Depending on the type of tape used, there may be times when the tape remaining time reading may not appear right away, or is not correct. "TMR" may sometimes appear, or the display may blink on occasion.

Video Plus+ Timer Programming

Before performing Video Plus+ Timer Programming:

- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



With Video Plus+, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder is able to recognise.

1 ACCESS VIDEO PLUS+ SCREEN

Press **PROG**.



The front display panel looks like this:



2 ENTER PLUSCODE NUMBER

Press the **NUMBER** keys to enter the PlusCode number of the programme you wish to record.

- If you make a mistake, press **X** and input the correct number.



The PlusCode number you enter appears on the front display panel:

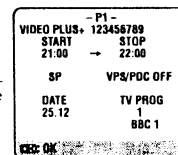


The display panel shows only a 4-digit number.

3 ACCESS VIDEO PLUS+ PROGRAM SCREEN

Press **OK**, and the Video Plus+ Program screen appears (if you're just starting out, "P1" appears).

The display panel shows the programme start time. Pressing **0** changes the display to the programme stop time, then the date and preset position.



IMPORTANT

Make sure the preset position number you wish to record is displayed; if not, see "Video Plus+ Setup" on page 56 and set the Guide Program number for that PlusCode number correctly.

- If the number you entered is invalid, "ERROR" appears on the screen and "Err" appears on the display panel. Press **X** and input a valid PlusCode number.
- If the "GUIDE PROG SET" screen appears, see "ATTENTION - Regarding Guide Program Number Set" on page 15.

4 SET TAPE SPEED

Press **SP/LP** (**///**) to set the tape speed.

5 SET PDC MODE

Press **PDC** to select "ON" or "OFF".

If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, PDC is set to OFF. If "PDC Recording" in the column below.

- VPS (Video Programme System) recording is not currently available in the U.K. and not possible with this recorder.

RETURN TO NORMAL SCREEN

Press **PROG** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps 1 - 6 for each additional programme.

ENGAGE RECORDER'S TIMER MODE

Press **0** (**TIMER**). The recorder turns off automatically and **0** appears on the display panel.

- To disengage the timer, press **0** (**TIMER**) again.

NOTES:

- To Change The Stop Time . . . press **STOP +/-** after pressing **OK** in step 3. You can compensate for anticipated programme schedule delays this way.
- To Timer-Record Weekly Or Daily Serials . . . after pressing **OK** in step 3, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday - Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.
- You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (see pg. 18).
- It is not possible to timer-record a TV programme with a PlusCode number which starts with "0".

PDC Recording

Now available from some TV stations, PDC (Programme Delivery Control) is a service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over the advertised times which you may have preset into the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed from what has been advertised. PDC is currently available nationally on BBC1, BBC2, Ch.4 and Ch.5, except from a few small relay transmitters. Ch.3 operates a PDC service only in a very few areas. All channels intend to offer this service in due course. Check your TV programme listing guide for latest information. If the channel you intend to record does not offer a PDC service your recorder will not start recording if PDC has been selected. Be sure to set PDC to "OFF" if PDC is not available on your selected channel (see step 5 above).

NOTES:

- PDC recording is also possible when a satellite receiver or a cable system is connected to AV2 IN on your recorder.
- PDC recording is also possible via the AV1 IN/OUT connector.

Satellite Receiver Users

To timer-record a satellite broadcast using Video Plus+:

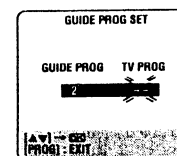
- 1 Set "AV2 SELECT" to the appropriate mode. (see pg. 35)
- 2 Perform steps 1 - 7.
- 3 Set the satellite receiver to the appropriate channel before the selected programme begins.
- 4 Leave the satellite receiver's power on.

ATTENTION

Regarding Guide Program Number Set

"GUIDE PROG SET" appears after performing step 3 if the Guide Program number for the PlusCode number you entered has not been set.

- Press the **NUMBER** keys or **Δ** to input the preset position number on which your recorder receives that station, then press **OK** or **0**. The Video Plus+ Program screen appears.



(Ex.) To timer-record a BBC2 programme with Video Plus+.
• If your recorder receives BBC2 on the preset position 2, press **OK** or **0** after entering "2".

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on the screen to tell you that the recording is due to start in 5 minutes.

NOTES:

- The warning only appears if you're not in the Timer mode at the time.
- If this recorder is being used as the player for tape dubbing, the warning screen will be recorded on the tape in the other video recorder.

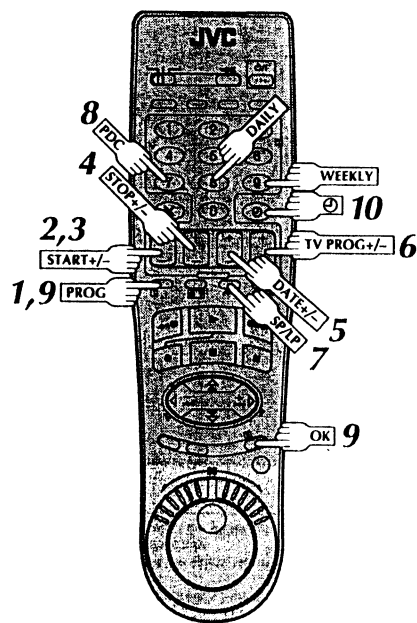
The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **X**.

WARNING-
TIMER RECORDING
TO START SOON
(X)

Express Timer Programming

Before performing Express Timer Programming:

- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



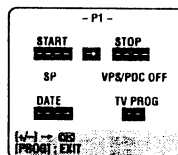
If you don't know the PlusCode number for the programme you wish to record, use the following procedure to set your recorder to timer-record the programme.

ACCESS VIDEO PLUS+ SCREEN

Press PROG.

ACCESS PROGRAMME SCREEN

Press START +/- (If you're just starting out, "P1" appears.)



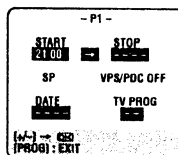
The front display panel looks like this:



ENTER PROGRAMME START TIME

Press START +/- to enter the time you want recording to start.

- Press and hold START +/- to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.



The front display panel looks like this:



ENTER PROGRAMME STOP TIME

Press STOP +/- to enter the time you want recording to stop.

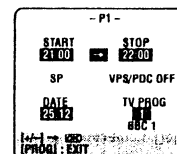
- Press and hold STOP +/- to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

ENTER PROGRAMME DATE

Press DATE +/- to enter the date on which you wish to record. (The current date first appears on screen. The date you enter will appear in its place.)

ENTER PRESET POSITION

Press TV PROG +/- to enter the preset position corresponding to the broadcasting station you wish to record.



SET TAPE SPEED

Press SP/LP (1/2) to set the tape speed.

SET PDC MODE

Press PDC to select "ON" or "OFF".

If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, PDC is set to OFF. If "PDC Recording" in the right column.

- VPS (Video Programme System) recording is not currently available in the U.K. and not possible with this recorder.

RETURN TO NORMAL SCREEN

After confirming all information is correct, press PROG or OK. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps 1 - 9 for each additional programme.

ENGAGE RECORDER'S TIMER MODE

Press (TIMER). The recorder turns off automatically and (X) appears on the display panel.

- To disengage the timer, press (TIMER) again.

To Timer-Record Weekly Or Daily Serials . . .
... anytime during steps 2 through 9, press WEEKLY (NUMBER key "9") for weekly serials or DAILY (NUMBER key "8") for daily serials (Monday - Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.

NOTE:

You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (see pg. 18).

Satellite Receiver Users

To timer-record a satellite broadcast using Express Timer Programming:
[1] Set "AV2 SELECT" to the appropriate mode. (see pg. 35)
[2] Perform steps 1 - 10. Enter "L-2" for the preset position in step 6.
[3] Set the satellite receiver to the appropriate channel before the selected programme begins.
[4] Leave the satellite receiver's power on.

PDC Recording

Now available from some TV stations, PDC (Programme Delivery Control) is a service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over the advertised times which you may have preset into the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed from what has been advertised. PDC is currently available nationally on BBC1, BBC2, Ch.4 and Ch.5, except from a few small relay transmitters. Ch.3 operates a PDC service only in a very few areas. All channels intend to offer this service in due course. Check your TV programme listing guide for latest information. If the channel you intend to record does not offer a PDC service your recorder will not start recording if PDC has been selected. Be sure to set PDC to "OFF" if PDC is not available on your selected channel. (see step 8 in the left column).

NOTES:

- Set the start time (PDC time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.
- PDC recording is also possible when a satellite receiver or a cable system is connected to AV2 IN on your recorder.
- PDC recording is also possible via the AV1 IN/OUT1 connector.

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on the screen to tell you that the recording is due to start in 5 minutes.

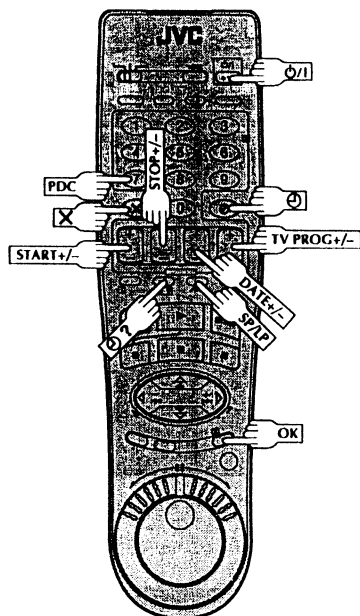
NOTES:

- The warning only appears if you're not in the timer mode at the time.
- If this recorder is being used as the player for tape dubbing, the warning screen will be recorded on the tape in the other video recorder.

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press X.

- WARNING -
TIMER RECORDING
TO START SOON
P1(X)

Check, Cancel And Replace Programmes



1

DISENGAGE TIMER MODE

Press $\odot$, then press $\odot/1$.

2

ACCESS PROGRAMME CHECK SCREEN/DISPLAY

Press $\odot$ 7.

PR	START	STOP	CH	DATE
1	8.00	10.00	3	24.12
2	10.00	10.45	2	25.12
3	11.30	13.00	1	25.12
4				
5				
6				
7				
8				

PIPB

3

ACCESS PROGRAMME SCREEN/DISPLAY

Press $\odot$ 7 again to check more information. Each time you press $\odot$ 7, the next programme's information appears.

- P1 -	
START 8.00	STOP 10.00
SP	VPS/PDC OFF
DATE 24.12	TV PROG 3

8:00 P1

• The display panel shows the programme start time. Pressing OK changes the display to the programme stop time, then the date and the preset position.

To cancel or replace a programme...

4

CANCEL OR REPLACE A PROGRAMME

Press X to cancel a programme. To replace a programme, press the appropriate button: START+/-, STOP+/-, DATE+/-, TV PROG+/-, SP/LP (///), PDC.

5

RETURN TO NORMAL SCREEN/DISPLAY

Press $\odot$ 7 as many times as necessary. If there are still some programmes to be recorded, go on to step 6.

6

RETURN TO TIMER MODE

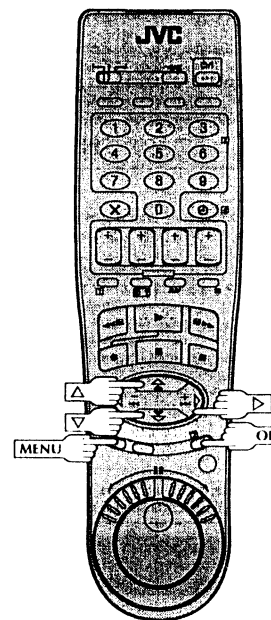
Press $\odot$.

NOTE:

You can also check the programmes on the display panel even when the recorder's power is off or the recorder is in the Timer mode. However, it is not possible to cancel or replace the programmes.

Recording According To Tape Type

Turn on the TV and select the VIDEO channel (or AV mode).



S-VHS (Super VHS) and VHS

Your recorder can record in either S-VHS or VHS.

To record in S-VHS:

Perform the steps 1 - 4 below to set "S-VHS" to "AUTO". Then, insert a cassette marked "S-VHS", the S-VHS indicator will light on the display panel. The S-VHS recording mode will be selected.

To record in VHS:

Insert a cassette marked "VHS". The VHS recording mode will be automatically selected regardless of the S-VHS mode setting.

To record in VHS on an S-VHS cassette:

Insert the cassette marked "S-VHS", the S-VHS indicator will light on the display panel. Then, perform the steps 1 - 4 below to set the "S-VHS" to "OFF"; the S-VHS indicator will go out. The VHS recording mode will be selected.

1

ACCESS MAIN MENU SCREEN

Press MENU.

2

ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing Δ or ∇ , then press OK or $\odot$.

MAIN MENU	
BF MODE SET	
AUTO CH SET	
MANUAL CH SET	
INITIAL SET	
REC LEVEL CTL	
R.A. EDIT	
[Δ]/[∇] $\rightarrow$ OK	
[MENU] $\rightarrow$ EXIT	

3

SELECT S-VHS MODE

Move the highlight (pointer) to "S-VHS" by pressing Δ or ∇ , then press OK or $\odot$ to select "AUTO" or "OFF".

MODE SET	
AUTO TIMER	OFF
D. S. D.	ON
B. E. S. T.	ON
AUTO SP $\rightarrow$ LP TIMER	OFF
DIGITAL 3A	ON
S-VHS	AUTO
EDIT	OFF
NEXT PAGE	
[Δ]/[∇] $\rightarrow$ OK	
[MENU] $\rightarrow$ EXIT	

4

RETURN TO NORMAL SCREEN

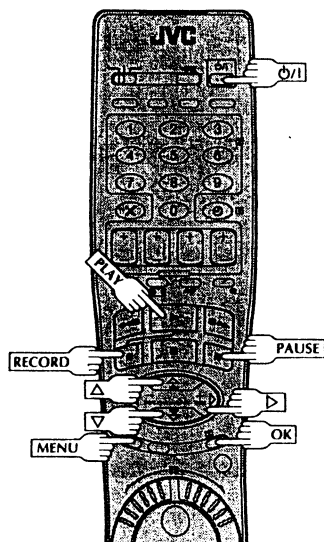
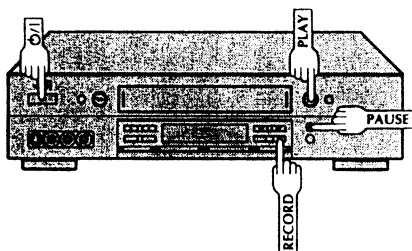
Press MENU.

NOTE:

When playing back a tape that has been recorded in S-VHS, the S-VHS indicator lights on the display panel regardless of the "S-VHS" mode setting.

Playback/ Recording According To Tape Charac- teristics

Turn on the TV and select the VIDEO channel (or AV mode).



B.E.S.T. Picture System

The B.E.S.T. (Biconditional Equalised Signal Tracking) system checks the condition of the tape in use during recording and playback, and compensates to provide the highest-possible recording and playback pictures. The default setting for both recording and playback is "ON".

TURN ON THE RECORDER

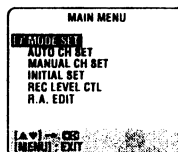
Press ϕ/I .

ACCESS MAIN MENU SCREEN

Press MENU.

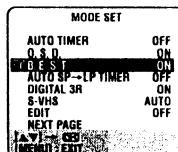
ACCESS MODE SET SCREEN

Press Δ/∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.



SELECT B.E.S.T. MODE

Press Δ/∇ to move the highlight bar (pointer) to "B.E.S.T.", then press OK or $\triangleright$ to set to "ON" or "OFF".



RETURN TO NORMAL SCREEN

Press MENU.

Recording

START RECORDING

Press and hold RECORD and press PLAY on the remote, or press RECORD on the recorder.

DURING B.E.S.T.



B.E.S.T. COMPLETE



- The recorder spends approximately 7 seconds assessing the condition of the tape, then begins recording.

NOTES:

- The B.E.S.T. system works for both SP and LP modes only after a tape has been inserted and the Record mode is first initiated. It does not work during recording.
- The B.E.S.T. system does not work while Auto Satellite Prog recording is in progress (see pg. 28).
- In the case of timer recording, the B.E.S.T. system works before recording is initiated.
- Once the cassette is ejected, the B.E.S.T. data is cancelled. The next time the cassette is used for recording, B.E.S.T. is re-performed.
- Pressing the recorder's RECORD button while "BEST" is displayed does not start Instant Timer Recording (see pg. 13).

ATTENTION

Since the B.E.S.T. system works before recording actually starts, there is a delay of approximately 7 seconds after RECORD and PLAY on the remote are pressed, or RECORD on the recorder is pressed. To make sure you record the desired scene or programme in its entirety, first perform the following steps:

- Press and hold PAUSE and press RECORD to engage the RECORD PAUSE mode.
 - The recorder then automatically checks the condition of the tape and, after approximately 7 seconds, re-enters RECORD PAUSE.
- Press PLAY when you are ready to start recording.
 - If you want to bypass the B.E.S.T. system and begin recording immediately, set "B.E.S.T." to "OFF" in step 4 on page 20.

Playback

The recorder assesses the quality of the tape once you initiate playback.

START PLAYBACK

Press PLAY.

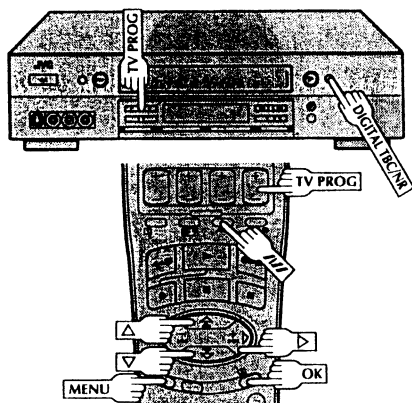


- The recorder adjusts the playback picture quality based on the quality of the tape in use.
- B.E.S.T. is active during Auto Tracking. "BEST" appears blinking on the recorder's display panel.

NOTES:

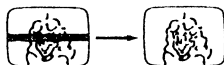
- When watching a tape recorded with "B.E.S.T." set to "ON", it is recommended that you leave B.E.S.T. on during playback as well.
- When watching a rental tape or one recorded on another video recorder, or when using this recorder as the player for editing, set B.E.S.T. to your preference by performing steps 1 through 5 on page 20.
- "BEST" only appears at the beginning of automatic tracking. Even though it doesn't appear after that, the B.E.S.T. function is operative.

Playback Picture Adjustment



Manual Tracking

Your video recorder is equipped with automatic tracking control. For most tapes this will automatically adjust the tracking to suit the particular tape you are playing. In some circumstances it may be necessary to make manual tracking adjustments. This is usually only associated with old or worn tapes or recordings made on old or worn recorders. If the automatic tracking control fails to operate correctly you will see noise bars across the picture as shown on the left below. To correct this you can override the automatic control and adjust the tracking manually by pressing the TV PROG button.



1 OVERRIDE AUTOMATIC TRACKING

Press **TV PROG** on the remote to engage manual tracking.

2 ADJUST TRACKING MANUALLY

Press **TV PROG** + **+** or **-** to adjust tracking.

3 RETURN TO AUTOMATIC TRACKING

Press **TV PROG** on the remote to re-engage automatic tracking.

NOTE:

When a new tape is inserted, the recorder returns to the automatic tracking mode automatically.

Digital TBC/NR

Your video recorder is equipped with the Digital TBC (Time Base Corrector) that removes jitter from fluctuating video signals to deliver a stable picture even with old tapes and rental cassettes. The on/off of Digital 3-DNR (Noise Reduction) which cuts noise and enables clear picture reproduction is also linked to this function. * The default setting is "ON".

We recommend that you use the Digital TBC feature when...
... playing back a tape recorded on a camcorder.
... playing back a tape repeatedly used.
... using this video recorder as the player for editing.

1 ACTIVATE DIGITAL TBC/NR

Press **DIGITAL TBC/NR** so that the button lights up.

- To turn off **DIGITAL TBC/NR**, press **DIGITAL TBC/NR** again so that the light goes off.

NOTES:

- If you play back a tape recorded under poor TV reception condition, there may be cases where the picture becomes more stable with **Digital TBC/NR** set to off.
- When **Digital TBC/NR** is set to on, if you play back a tape where certain types of signals are recorded (using a PC or some character generators), the playback picture may be distorted. If this is the case, turn off **Digital TBC/NR**.

Digital 3R

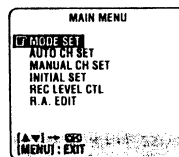
Digital 3R picture system applies edge correction to the luminance signal to enhance detail.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

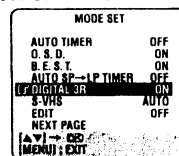
2 ACCESS MODE SET SCREEN

Move the highlight bar (arrow) to "MODE SET" by pressing **Δ**, then press **OK** or **▷**.



3 SELECT DIGITAL 3R SET MODE

Move the highlight bar (arrow) to "DIGITAL 3R" by pressing **Δ**, then press **OK** or **▷** to set to "ON".



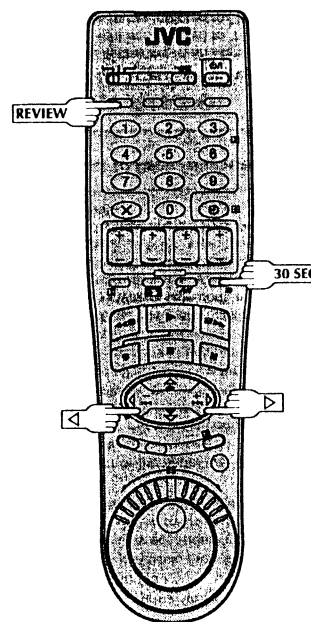
4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

- Normally it is recommendable to keep "DIGITAL 3R" set to "ON".
- Depending on the type of tape being used, picture quality may be better with "DIGITAL 3R" set to "OFF".

Looking For The Scene You Want



Skip Search

1 SKIP OVER UNWANTED SECTIONS

Press **30 SEC** 1 to 4 times during playback. Each press initiates a 30-second period of fast-motion playback. Normal playback resumes automatically.

NOTE:

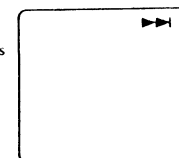
To return to normal playback during a Skip Search, press **PLAY**.

Index Search

Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.

NOTE:

Before starting, make sure the recorder is in the Stop mode.

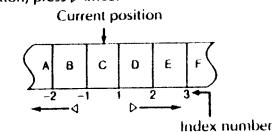


1 ACTIVATE INDEX SEARCH

Press **◀** or **▶** (**◀◀** or **▶▶**). "**◀◀ 1**" or "**▶▶ 1**" is displayed on screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press **◀** or **▶** repeatedly until the correct index number is displayed.

Ex.: To locate the beginning of B from the current position, press **◀** twice.
To locate the beginning of D from the current position, press **▶** once.



- When the specified index code is located, playback begins automatically.

Instant ReView

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last timer-recorded programme. If you have several programmes recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the recorder is off and that the Timer mode is disengaged.

1 ACTIVATE INSTANT REVIEW

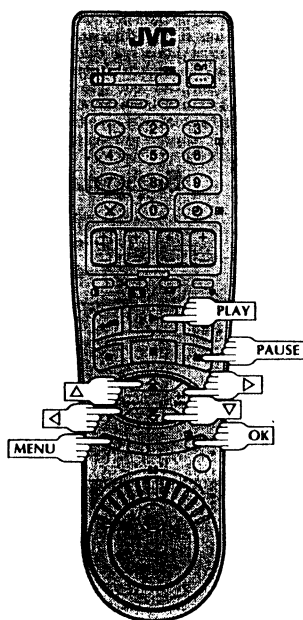
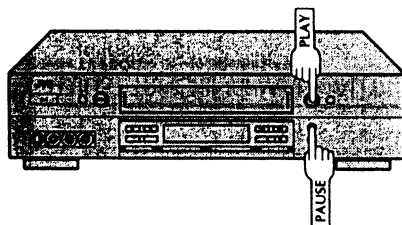
Press **REVIEW**. The recorder power comes on and the recorder searches for the index code indicating the start of the last timer-recorded programme. Once it's found, playback begins automatically.

- The front display panel tells you how many programmes have been timer recorded. If you have, for example, 3 programmes, "REVIEW" and "3" appear and blink. To watch the first of the 3 programmes, press **REVIEW** three times. The recorder searches and begins playback automatically. You can access a programme as far as 9 index codes away from the current tape position.

NOTES:

- Instant ReView is not possible while the recorder is in the Timer mode.
- The number of recorded programmes will not be displayed on the front display panel after Auto Satellite Prog recording (p. 27 pg. 28).

TimeScan



Your recorder is equipped with the TimeScan function. TimeScan allows noise free pictures to be displayed on your TV screen in the forward and reverse search modes. Audio will be played back at normal speed during the TimeScan modes (pg. 25). TimeScan also allows you to view a programme in search mode while listening to the audio.

Normal recorder



Visible

Recorder with TimeScan



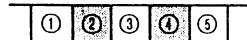
Noiseless

NOTES:

- The "TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard in TimeScan mode.
- The default setting for TimeScan audio is ON. (pg. 25)
- The audio will not synchronize with the video in TimeScan modes.
- In Pause mode 3 seconds (approx.) of audio will be played back repeatedly. (pg. 11)
- In TimeScan search modes some of the audio information will not be played so that the audio can keep up with the video.

Audio signal during TimeScan

Playback tape



Sound of ①, ③ and ⑤ is heard.

Sound of ② and ④ is not heard.

Output audio signal is normal (monaural) sound.

Variable-Speed Search/Reverse Play

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback, press ◀ or ▶.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.

(Refer to the chart on pg. 25 for playback speeds).

To resume normal playback, press PLAY.

TimeScan

Names of special-effects playback	Reverse			Forward		
	Search	Play	Slow-Motion (Time Jog**)	*Still	Slow-Motion (Time Jog**)	Search
Speed SP	-9x -7x -5x -3x	-1x	-1/2x	0	1/2x	1x 1.5x 2x 3x 5x 7x 9x
Speed LP	-7x -3x	-1/2x	-1/2x	0	1/2x	1x 1.5x 2x 3x 5x 7x 9x
Audio output	Audio is output.		Audio is not output.	Audio is output.	Audio is output.	Audio is output.

* To activate the Still mode from the remote control press PAUSE button. Still mode cannot be engaged using the remote control's ◀▶ button.

** Smooth slow motion delivering an uninterrupted moving image without distortion.

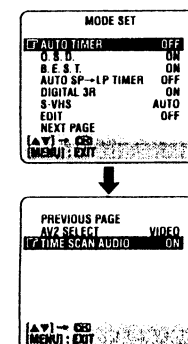
- The speed is shown during TimeScan in the upper right corner of the TV screen for approx. 5 seconds. (On some TVs the display may be distorted.)
- To resume normal playback, press PLAY.
- Picture and audio may occasionally become distorted when the recording speed changes. If this happens, resume normal playback once, and then try using TimeScan again.
- The picture may be noisy or there may be a loss of colour when you change the playback speed. (More noise will appear with LP recordings.)
- Noise may appear or the upper part of the picture may be distorted during still, frame-by-frame playback, 2x search of LP recordings, or with certain tapes.
- Picture may appear distorted in comparison to normal playback.
- When normal playback resumes from search (including TimeScan), still, slow motion or frame-by-frame playback, the picture may jitter vertically momentarily depending on the type of TV being used.
- In TimeScan mode there will be a time lag between the video and the audio and noise may appear in the audio signal.
- TimeScan sound quality will differ in comparison to normal playback.
- When material such as music videos where there is non-stop sound (very few breaks in the soundtrack) are viewed at 1.5x or 2x normal speed, the audio playback may be faster than normal.
- Depending on the type of tape contents, the sound may not be clear during forward slow-motion playback.
- Time Jog cannot be activated by pressing PAUSE for longer than 2 seconds.
- When the playback direction is reversed, it takes approximately 6 seconds until sound is heard.
- When playing back an NTSC tape, the speeds differ from those listed above and are not shown on the TV screen.
- The operations by the remote's JOG dial/SHUTTLE ring do not include TimeScan; noise will appear on the screen and audio will not be output.

If you don't want to hear TimeScan audio, set the "TIME SCAN AUDIO" to OFF. (See below)

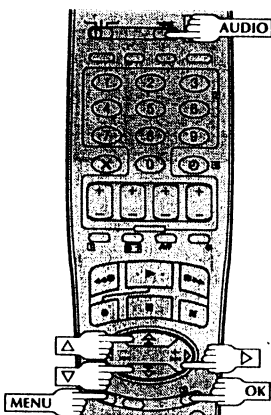
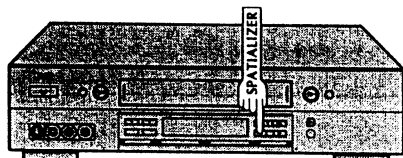
TimeScan Audio

The audio output can be set ON/OFF during TimeScan. Select ON/OFF as required.

- Press MENU to access the Main Menu screen.
- Move the highlight bar (pointer) to "MODE SET 1" by pressing ◀▶, then press OK.
- Move the highlight bar (pointer) to "TIME SCAN AUDIO" by pressing ◀▶, then press ▶ to select "ON" or "OFF".
- Press MENU to return to the normal screen.



Selecting The Sound You Want



Receiving NICAM Stereo And Bilingual Programmes

Your recorder is equipped with a Digital stereo sound decoder (NICAM), making reception of stereo and bilingual broadcasts possible.

When the recorder is tuned to a different station, the type of broadcast being received will be displayed on the TV screen for a few seconds.

Type of Broadcast Being Received	On-screen Display
Regular Monaural	(none)
NICAM Stereo	ST NICAM
NICAM Bilingual	BIL NICAM
NICAM Monaural	NICAM

- To listen to a stereo programme, press **AUDIO** until and appear on the front display panel or "HI FI L R" appears on the screen.
- To listen to a bilingual programme, press **AUDIO** until either or appears on the front display panel or "HI FI L R" or "HI FI R" appears on the screen (as required).
- To listen to the Standard (regular monaural) audio while receiving a NICAM broadcast, press **AUDIO** until "NORM" appears on the front display panel or on the screen.

NOTES:

- The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.
- If the quality of stereo sound being received is poor, the broadcast will be received in monaural with better quality.
- Before playing back a programme recorded in stereo, or a bilingual programme, refer to "Soundtrack Selection" (See below).
- "O.S.D." must be set to "ON" or the on-screen displays will not appear (see pg. 42).

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

During Playback

Pressing **AUDIO** on the remote control changes the soundtrack being played back as follows:

TRACK		USE
Recorder's Front Panel	On-Screen Display	
+	HI FI L R	For Hi-Fi stereo tapes
	HI FI L	For main audio of Bilingual tapes
	HI FI R	For sub audio of Bilingual tapes
NORM	NORM	For audio-dubbed tapes
+ + NORM	HI FI NORM	For audio-dubbed tapes

NOTES:

- + should normally be selected. In this mode, Hi-Fi stereo tapes are played back in stereo, and the normal audio track is played back automatically for tapes with only normal audio.
- For instructions on recording NICAM stereo and bilingual programmes (See above).
- Bilingual programmes are not currently broadcast in the U.K.
- "O.S.D." must be set to "ON" or the on-screen displays will not appear (see pg. 42).

Hi-Fi Audio Recording LEVEL Control

In most cases, setting the Hi-Fi audio recording level control to the centre position will provide satisfactory results. If necessary, you can adjust the Hi-Fi audio recording level more precisely by referring to the audio level indicator on the front panel.

ACCESS MAIN MENU SCREEN

Press **MENU**.

ACCESS HI-FI REC LEVEL CONTROL SCREEN

Press Δ or ∇ to move the highlight bar (pointer) to "REC LEVEL CTL", then press **OK** or **P**.

SELECT MODE

Move the highlight bar (pointer) to "MANUAL" by pressing Δ or ∇ , then press **OK** or **P**.



ADJUST AUDIO RECORDING LEVEL

Press Δ or ∇ .

- Press Δ or ∇ briefly 5 times to move the on-screen's audio levels by one division on the scale. To move the audio levels faster, keep Δ or ∇ pressed.
- Adjust the recording level while watching the recorder's audio level meters. Set the level so that maximum volume causes the meters to vary between 0dB to 4dB.

RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

Noise will increase if the recording level is too low, while distortion will increase if the level is too high.

Spatializer®

This feature expands the sound field when you play back any stereo source or view a stereo programme while recording it. *Spatializer® has no effect on recording quality.

ACTIVATE SPATIALIZER®

Press **SPATIALIZER**; the current setting will be displayed on the screen for about 5 seconds. Pressing **SPATIALIZER** while the screen shows the display changes the setting.

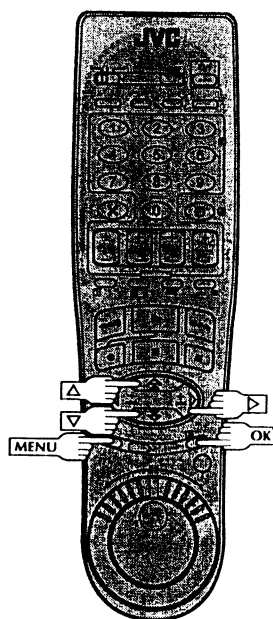
- To view a stereo programme such as movies or music, select "SPATIALIZER to create more spacious sound.
- To view a monaural programme, select "SPATIALIZER $\rightarrow$ ST" which simulates a stereo effect.
- Select "SPATIALIZER OFF" to turn off Spatializer® if the sound becomes unnatural with either "SPATIALIZER or "SPATIALIZER $\rightarrow$ ST" selected.
- If your TV is equipped with 3D-PHONIC and if you use both Spatializer® and 3D-PHONIC at the same time, the sound may become unnatural; set either function to "OFF".
- The setting will remain effective even though you turn on/off the recorder.

NOTES:

- Spatializer® is effective only with a stereo TV.
- You can change the Spatializer® setting even though "O.S.D." is set to "OFF".
- The setting cannot be changed during search, still, frame-by-frame playback or slow motion mode.
- When this recorder is used as the player for editing, the recorded audio will correspond to the Spatializer® setting.

Minimizing Picture Degradation While Editing

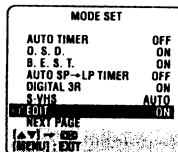
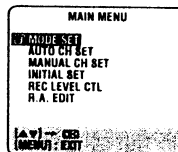
Turn on the TV and select the VIDEO channel (or AV mode).



Editing Mode Setting

Perform the following steps to set "EDIT" to "ON" before you start editing (see pg. 33, 34, 36).

- 1 ACCESS MAIN MENU SCREEN**
Press MENU.
- 2 ACCESS MODE SET SCREEN**
Move the highlight bar (pointer) to "MODE SET" by pressing Δ , then press OK or $\triangleright$.
- 3 SELECT EDIT MODE**
Move the highlight (pointer) to "EDIT" by pressing Δ , then press OK or $\triangleright$ to select "ON".
- 4 RETURN TO NORMAL SCREEN**
Press MENU.



NOTE:

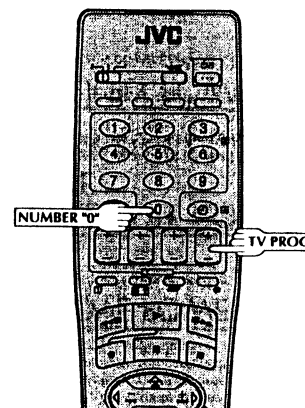
After you finish editing, be sure to set "EDIT" back to "OFF".

Advantages Of S-VHS Video Recorders

You can edit from VHS to S-VHS, S-VHS to VHS, or from S-VHS to S-VHS.

- From VHS to S-VHS: Record VHS playback signals in the S-VHS mode. Although the picture quality is inherently limited by that of the original, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to VHS: Because the picture quality of the source material is very high, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to S-VHS: All signals will be transferred with minimum degradation.

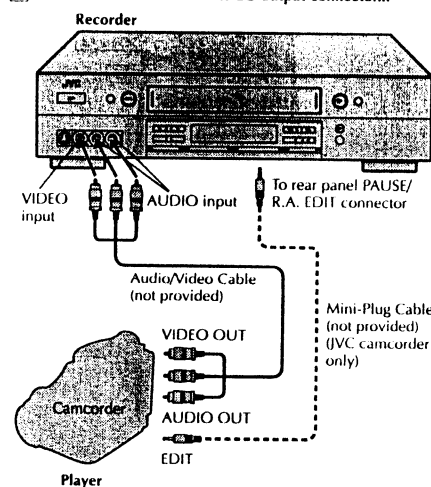
Edit From A Camcorder



NOTES:

- All necessary cables can be obtained from your dealer.
- You can also use another video recorder as the player instead of a camcorder.

A If the camcorder has no S-VIDEO output connector...



You can use a camcorder as the source player and your video recorder as the recorder.

MAKE CONNECTIONS

A If the camcorder has no S-VIDEO output connector... connect the camcorder's AUDIO/VIDEO OUT connectors to the recorder's front panel AUDIO/VIDEO input connectors.

B If the camcorder has an S-VIDEO output connector... connect the camcorder's S-VIDEO OUT and AUDIO OUT connectors to the recorder's front panel S-VIDEO and AUDIO input connectors.

- When using a monaural camcorder, connect its AUDIO OUT connector to the AUDIO L input connector on your recorder.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling the recorder. Refer to the camcorder's instruction manual for operating procedure.

SET RECORDER'S INPUT MODE

Press NUMBER key "0" and/or TV PROG to select "F-1" for the AUDIO/VIDEO input connectors, or "S-1" for the AUDIO/S-VIDEO input connectors, depending on the connectors being used.

SET EDIT MODE

See "Editing Mode Setting" on page 32.

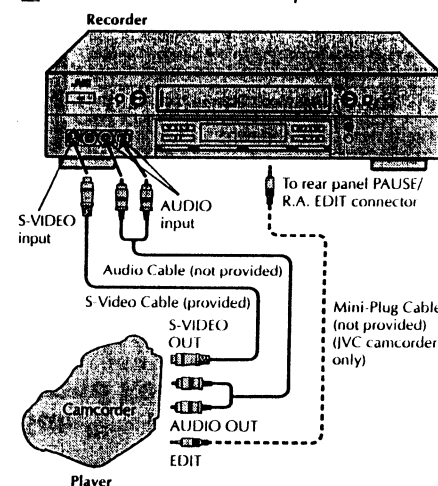
START CAMCORDER

Engage its Play mode.

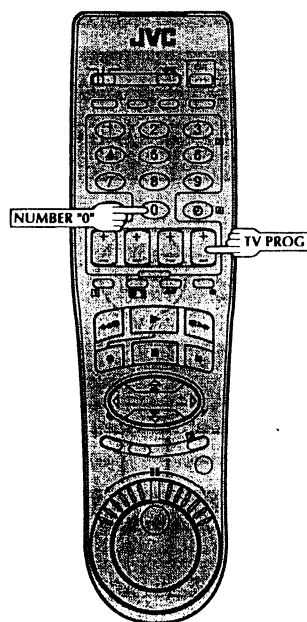
START RECORDER

Engage its Record mode.

B If the camcorder has an S-VIDEO output connector...



Edit To Or From Another Video Recorder



You can use your video recorder as the source player or as the recording deck.

1

MAKE CONNECTIONS

Connect the player's 21-pin SCART connector to the recorder's 21-pin SCART connector as illustrated on page 35.

[A] When Using Your Video Recorder As The Source Player ...
... connect its AV1 IN/OUT connector to the recording deck.

[B] When Using Your Video Recorder As The Recording Deck ...
... connect its AV2 IN or AV1 IN/OUT connector to the source player.

2

SET RECORDING DECK'S INPUT MODE

Set to AUX. With this video recorder, press NUMBER key "0" and/or TV PROG to select "L-1" for the AV1 IN/OUT connector, or "L-2" for the AV2 IN connector, depending on the connector being used.

• When using the AV2 IN connector, set "AV2 SELECT" to the appropriate mode. (pg. 35)

3

SET EDIT MODE

See "Editing Mode Setting" on page 32.

4

START SOURCE PLAYER

Engage its Play mode.

5

START RECORDING DECK

Engage its Record mode.

NOTES:

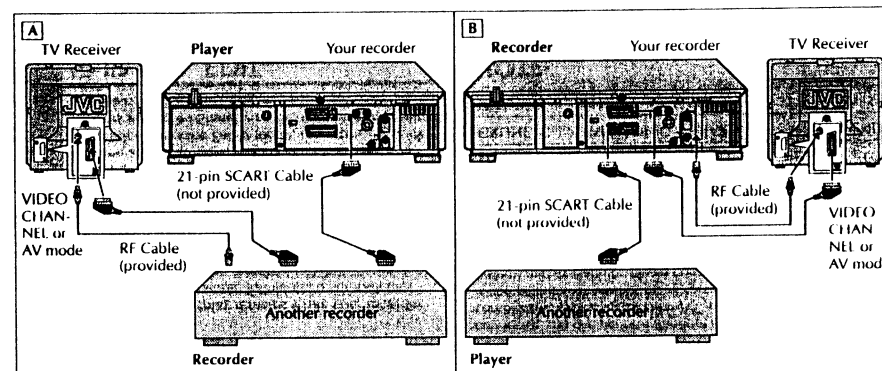
- All necessary cables can be obtained from your dealer.
- For Y/C signal input/output, be sure to use a 21-pin SCART cable that is compatible with the Y/C signal.
- When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting (pg. 42).
- If you are using another recorder with S-Video and Audio input/output connectors, you can connect those connectors to this recorder's S-VIDEO IN/S-VIDEO OUT and AUDIO IN/AUDIO OUT connectors.

When Using Your Video Recorder As The Source Player ...

... connect its rear panel S-VIDEO OUT and AUDIO OUT connectors to the recording deck's S-Video and Audio input connectors.

When Using Your Video Recorder As The Recording Deck ...

... connect its front panel S-VIDEO and AUDIO input connectors to the source player's S-Video and Audio output connectors. Then, set the recorder's input mode to "S-1".



AV2 SELECT Setting

Set "AV2 SELECT" to the appropriate mode depending on the type of unit connected to the rear panel AV2 IN connector of this recorder.

1 Press MENU to access the Main Menu screen.

2 Press Δ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.

3 Press Δ to move the highlight bar (pointer) to "AV2 SELECT".

4 Press OK or $\triangleright$ to select one of the following:

a-VIDEO : If a connected device's output is compatible only with regular video signals, set "AV2 SELECT" to "VIDEO".

b-S-VIDEO : If a connected device's output is compatible with Y/C signals, set "AV2 SELECT" to "S-VIDEO". This setting will let you take advantage of higher-quality S-VHS pictures.

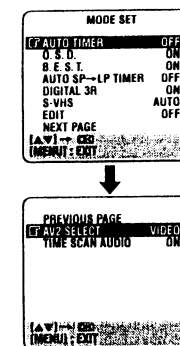
c-SAT : If a satellite receiver is connected to the AV2 IN connector, set "AV2 SELECT" to "SAT". (See page 28 as well.)

5 Press MENU to return to normal screen.

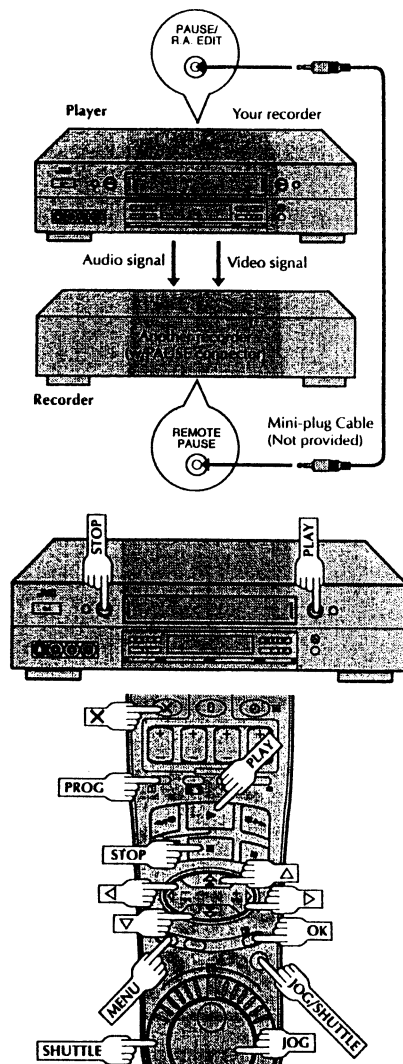
• If you are using a satellite receiver, be sure to set "AV2 SELECT" back to "SAT" after editing.

• If you're not using a satellite receiver, leave "AV2 SELECT" set to "VIDEO" or "S-VIDEO".

• The default setting is "VIDEO"; if the recorder's memory backup has expired due to a power cut or because the AC was removed from the recorder, "VIDEO" will be automatically selected when the power is restored to the recorder. If you are using a satellite receiver, be sure to set "AV2 SELECT" back to "SAT".



Random Assemble Editing



This function makes it easier to create edited videos when your video recorder is used as the source player in combination with another JVC video recorder equipped with a Remote PAUSE Connector. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified.

You can also perform Random Assemble Editing with a second non-JVC recorder. *See* pg. 37

MAKE CONNECTIONS

Connect your recorder's AV1 IN/OUT or S-OUT/AUDIO OUT connectors to the VIDEO IN and AUDIO IN connectors on the recording deck, and connect your recorder's PAUSE/R.A. EDIT connector to the PAUSE connector on the recording deck.

- If the recording deck doesn't have a PAUSE connector, connect to the R.A. EDIT connector instead.
- The Mini-plug cable is a mono 3.5 mm mini-plug to mono 3.5 mm mini-plug connector.

PREPARE FOR EDITING

Insert the cassette to be recorded on into the recorder and set the recorder's input mode.

LOAD SOURCE CASSETTE

Insert the source cassette into your recorder.

SET EDIT MODE

See "Editing Mode Setting" on page 32.

START SOURCE PLAYBACK

Press **PLAY**.

ACCESS MAIN MENU SCREEN

Press **MENU**.

ACCESS R.A. EDIT SCREEN

Press Δ ∇ to move the highlight bar (pointer) to "R.A.EDIT", then press **OK**.

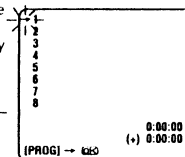
- The screen is superimposed on the video playback in step 8.

8

LOCATE EDIT-IN POINT

Find the point on the source tape from where you want the edited scene to begin by pressing Δ ∇ or using the **SHUTTLE** ring or the **JOG** dial, then press **PROG**.

- The edit-in point is registered in memory and appears on the screen.
- To use the **JOG** dial/**SHUTTLE** ring, first press the **JOG/SHUTTLE** button on the remote control so that the button lights up.

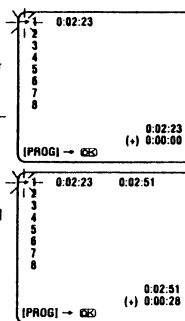


9

LOCATE EDIT-OUT POINT

Find the point where you want the edited scene to end by pressing Δ ∇ or using the **SHUTTLE** ring or the **JOG** dial, then press **PROG**.

- The edit-out point is registered in memory and appears on the screen.
- The total time of the edited scenes is displayed to the right of "(+)"
- Repeat steps 8 and 9 for each additional scene.



10

PREPARE RECORDING DECK

Engage its Record-Standby mode.

11

START R.A. EDIT

Press **OK**.

- Automatic editing begins; all the specified scenes are copied to the recording deck in the order they were registered.
- The on-screen display remains while your recorder searches for each scene (blinking cursor indicates scene currently being searched for), but disappears during actual editing.
- While your recorder is searching for each scene, you can hear high-speed sound (which is not TimeScan Audio).
- During scene search, the recording deck automatically enters its Record Standby mode.
- When all registered scenes have been edited, your recorder enters the Pause mode, the recording deck enters its Record-Standby mode, and the cursor blinks at the next available number.

12

END R.A. EDIT

Press **MENU** to return to the normal screen, and engage the Stop mode for your recorder and for the recording deck.

NOTES:

- You can also monitor the sound when searching for scenes you want to edit in steps 8 - 9. Since you can hear the soundtrack during selection, you can avoid abrupt or unnatural sounding scene-to-scene transitions. The sound that is heard, however, is not TimeScan Audio.
- When editing, there may be a discrepancy of about 2 seconds on the source tape between the locations you chose as edit-in/out points and the locations your recorder recognizes as those points.
- For any scene, the edit-out point must have a counter reading that is at least 1 second after the corresponding edit-in point. Any less than 1 second and the edit-out point will not be registered.
- Since the source recorder prerolls during Random Assemble Editing, there must be at least 15 seconds worth of recorded material prior to any edit-in point on the source tape.
- If the search time for an edit-in point exceeds 5 minutes, the recording deck enters its Stop mode and editing will not take place.
- During steps 8 and 9 - if you engage the Pause mode while registering edit-in and -out points in the R.A. Edit screen, the characters in the on-screen display may become distorted. This is normal.

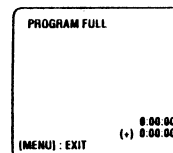
To Make Corrections . . .

- . . . during step 8 or 9, you can cancel registered in and out points by pressing **X** on the remote control. Each time you press, the preceding point is erased.
- If, for example, you have registered 5 sets of in and out points and want to reset the first set, you have to press **X** until all points after the first set have been erased. Reenter them after you've repaired the first set of points.

Memory Capacity

Random Assemble Editing shares memory space with the recorder's timer. If there are programs occupied by timer recording data, those spaces cannot be used to register edit-in and -out points - meaning you won't be able to edit 8 scenes.

- When all 8 programs are full, "PROGRAM FULL" appears on the R.A. EDIT screen.
- To cancel a program, see page 18.



RM-V704U Multi-Brand R.A. Edit Controller (Not provided)

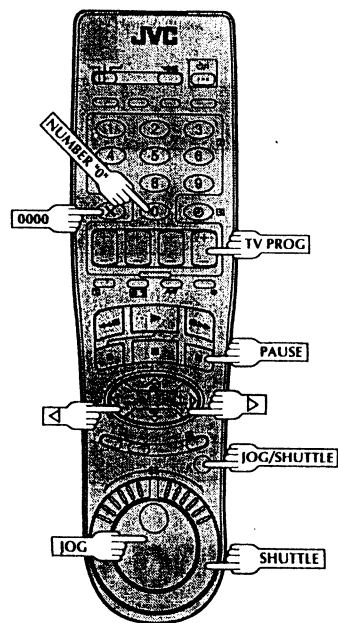
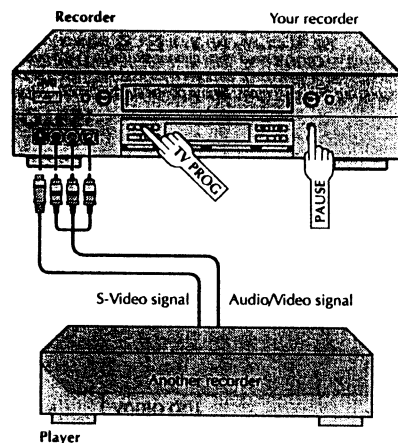
By connecting this controller to your recorder's R.A. EDIT connector, you can perform Random Assemble Editing in combination with a second non-JVC video recorder. The controller is compatible with various major recorder brands. For compatible systems and availability, please consult your JVC dealer.

BRAND LIST			
AKAI	JVC	SANYO	THOMSON
BLAUPUNKT	MITSUBISHI	SELECO	TELEFUNKEN
FERGUSON	NEC	REX	SABA
GRUNDIG	PANASONIC	SHARP	NORDMENDE
HIITACHI	PHILIPS	SONY	TOSHIBA

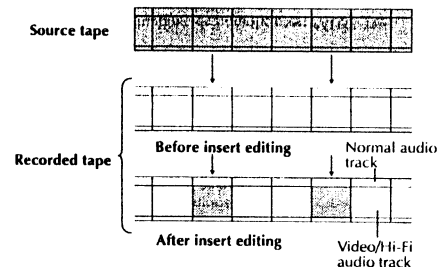
NOTE:

Although the RM-V704U is designed to operate the recording deck, it may not work with some recorders, or may have limited function capability.

Insert Editing



Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. If you wish to change the normal audio track as well, use the audio dubbing function simultaneously. Use your video recorder as the recorder.



MAKE CONNECTIONS

Connect the player's VIDEO OUT or S-VIDEO OUT and AUDIO OUT connectors to your recorder's VIDEO or S-VIDEO and AUDIO input connectors on the front panel.

SET INPUT MODE

Press NUMBER key "0" and/or TV PROG so that "F-1" for the VIDEO/AUDIO input connectors or "S-1" for S-VIDEO/AUDIO input connectors appears in place of a channel number.

LOCATE END POINT

Load the recording cassette into your recorder, and play it back to determine the edit-out point (the end of the segment to be replaced) using the SHUTTLE ring or the JOG dial or pressing ◀▶ and PAUSE.

- To use the JOG dial/SHUTTLE ring, first press the JOG/SHUTTLE button on the remote control so that the button lights up.

RESET THE COUNTER

Press 0000 to change the counter display to "0:00:00".

LOCATE START POINT

Determine the edit-in point (the beginning of the segment to be replaced) using the SHUTTLE ring or the JOG dial or pressing ◀▶ and PAUSE.

- Be sure to engage the Still mode at the edit-in point.

ENGAGE INSERT EDITING

Press INSERT.

- Your recorder enters the Insert-Pause mode. ("I" and "E" light up on the front display panel.)
- The TV screen changes from the still picture to the input source you are going to record.

START EDITING

Load the source cassette and play back the segment that is to be inserted. When you reach the start of the section of the source tape that you wish to insert, press PLAY to start the tape in your recorder; Insert Editing begins at this point.

- "I" and "E" are displayed on the front display panel.

END INSERT EDITING

At counter "0:00:00", Insert Editing will stop automatically while the tape continues running in the Play mode. If you wish to stop Insert Editing before the specified edit-out point, press 0000.

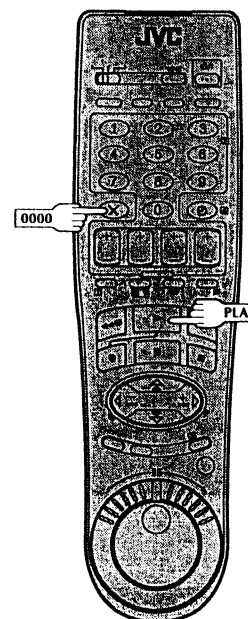
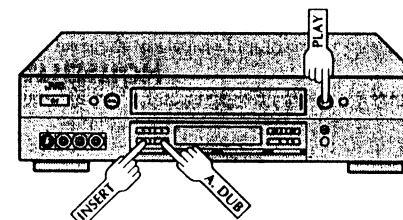
FOR AV INSERT EDITING

If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...

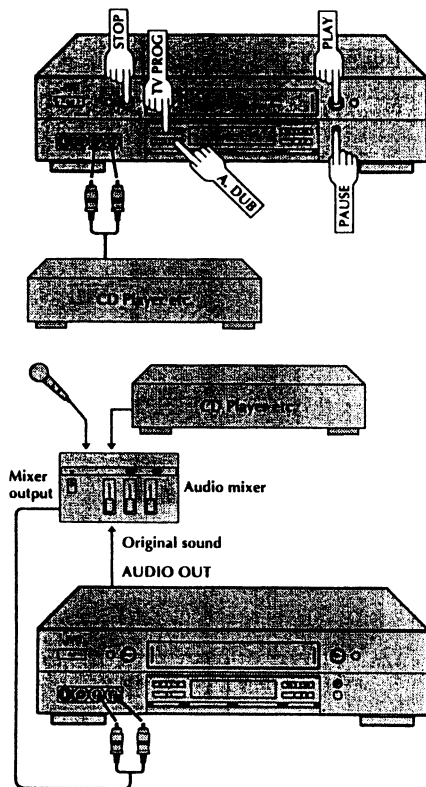
... In step 6 above, after you press INSERT, press A. DUB also. ("I" and "E" blink and "A" lights up on the front display panel.)

NOTES:

- Suitable leads can be obtained from your dealer.
- Insert editing is not possible with cassettes whose safety tab has been removed.
- When insert editing is performed on a tape that has been recorded on another video recorder, the inserted portion may appear distorted.
- In insert editing, the recording speed (SP/LP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.
- A small portion of the recording which precedes an insert edit may become erased.
- Insert Editing is also possible using the rear panel AV1 IN/OUT or AV2 IN connector. When using these connectors, make sure to select the correct input mode in step 2.



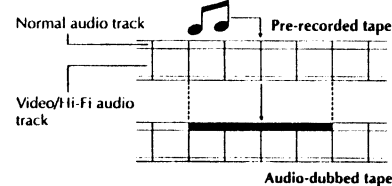
Audio Dubbing



NOTES:

- When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the mixed sound (Hi-Fi + Normal soundtracks), press **AUDIO** on the remote control to select $\square$ + $\square$ (L+R)+NORM* (pg. 26).
- Audio dubbing stops automatically when the counter reaches "0:00:00", and the recorder enters the Play mode. Check the counter reading before dubbing.
- Audio dubbing is also possible using the rear panel AV1 IN/OUT or AV2 IN connector. When using these connectors, make sure to select the correct input mode in step 2.
- Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.
- When playing back an audio-dubbed tape, press **AUDIO** on the remote control to select the soundtrack you wish to hear (pg. 26).

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.



MAKE CONNECTIONS

Connect an audio component to the AUDIO L + R connectors on the recorder's front panel.

- When connecting monaural equipment, use only the recorder's AUDIO L connector.

SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG** so that "F-1" or "S-1" appears in place of a channel number.

LOCATE START POINT

Press **PLAY** to start playback of the tape in your recorder, and press **PAUSE** when you find the point where you want to start dubbing.

ENGAGE AUDIO DUBBING

Press **A. DUB**.

- It is possible to take the original sound recorded on the tape in your recorder and mix it with other sounds from a microphone, CD player etc. To perform this audio dubbing with audio mixing, connect as in the diagram on the left.
- Your recorder enters the Audio Dubbing Pause mode. ("O" blinks, "P" and "D" light up on the front display panel.)
- To perform audio dubbing with audio mixing, press **AUDIO** on the remote control to select $\square$ + $\square$ (L+R) at this point.
 - * Audio dubbing with audio mixing is not possible if you're using a monaural audio component, or if you don't have an audio mixer.

START DUBBING

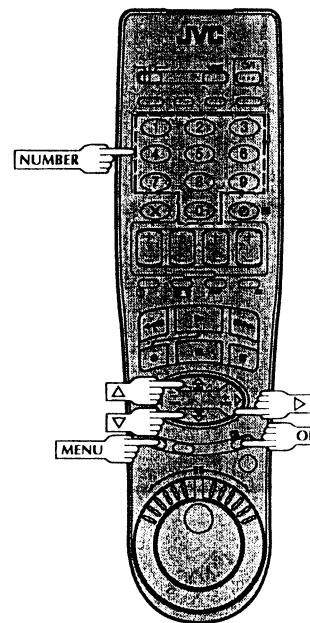
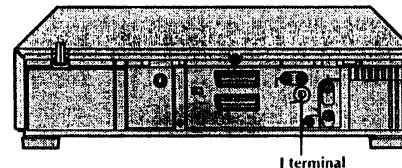
Engage the audio component's Play mode, then press **PLAY** to start the tape in your recorder. Audio dubbing begins at this point.

- "O" blinks and "P" is displayed on the front display panel.
- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

END AUDIO DUBBING

Press **STOP** to stop the tape in your recorder, and engage the audio component's Stop mode.

Information On J Terminal



ATTENTION

After you change your recorder's J-LIP ID number, control signal transmission may not work properly. If this happens, turn off the recorder's power off once, then turn it back on and try again.

J Terminal (JLIP(Joint Level Interface Protocol) Connector)

The J Terminal is used to connect the recorder to a personal computer or similar device to allow computerized control of the recorder during editing and certain other operations.

Examples:

With the optional JLIP VIDEO CAPTURE BOX GV-CB3E:

- Enables Random Assemble Editing of up to 99 segments, using this recorder as the playback unit.
- Allows you to capture still images from the recorder into a personal computer.

For further details consult your nearest JVC dealer.

JLIP ID Number

Your recorder has its own JLIP ID number. This ID number must be unique when your recorder is connected to another device via its J terminal. The ID Number is preset to "1" at the factory. You can change this number to any number between "1" and "99". If it is necessary to change the JLIP ID number perform the following steps.

ACCESS MAIN MENU SCREEN

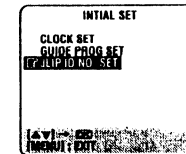
Press **MENU**.

ACCESS INITIAL SET SCREEN

Press Δ to move the highlight bar (pointer) to "INITIAL SET", then press **OK** or $\triangleright$.

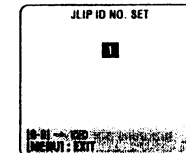
ACCESS JLIP ID NO. SET SCREEN

Press Δ and move the highlight bar (pointer) to "JLIP ID NO. SET", then press **OK** or $\triangleright$.



SET JLIP ID NUMBER

Press **NUMBER** keys to enter the desired ID number.

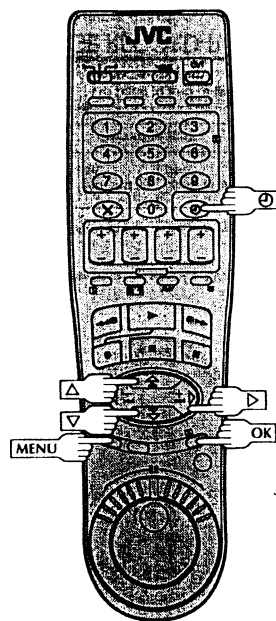


RETURN TO NORMAL SCREEN

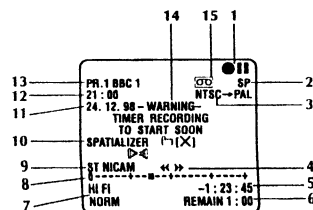
Press **OK**.

Other Functions

Turn on the TV and select the VIDEO channel (or AV mode).



The superimposed indication on the TV screen tells you what the recorder is doing.



On-Screen Display

You can choose whether or not to have various operational indicators appear on screen, by setting this function ON or OFF.

ACCESS MAIN MENU SCREEN

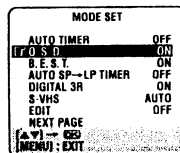
Press MENU.

ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing Δ / ∇ , then press OK or $\triangleright$.

ENABLE/DISABLE ON-SCREEN DISPLAY

The default setting is "ON", so if you want on-screen displays, leave the setting as it is and go to step 4. If you don't want the displays to appear, press Δ / ∇ to move the highlight bar (pointer) to "O.S.D." and press OK or $\triangleright$ to set "O.S.D." to "OFF".



RETURN TO NORMAL

Press MENU.

NOTES:

- When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting.
- During playback, the operation mode indicators may sometimes be disturbed depending on the type of tape being used.

- 1- Operation mode indicators
- 2- Tape speed SP/LP/EP (EP is for NTSC playback only)
- 3- NTSC playback display (pg. 44)
- 4- Tape direction
- 5- Counter display
- 6- Tape remaining time indicator (pg. 13)
- 7- Audio mode display (pg. 26)
- 8- Tape position indicator (pg. 10)
- 9- NICAM display (pg. 26)
- 10- Spatializer[®] indicator (pg. 27)
- 11- Current day/month/year
- 12- Clock display
- 13- Preset position number and station name/Aux. indicator (L-1, L-2, F-1 or S-1)
- 14- Timer warning display (pg. 15, 17)
- 15- Cassette loaded mark

Auto SP→LP Timer

If, when timer-recording in SP mode, there is not enough tape to record the entire programme, the recorder automatically switches to LP mode to allow complete recording.

For Example...

Recording a programme of 210 minutes in length onto a 180-minute tape

Approximately 150 minutes Approximately 60 minutes

SP mode	LP mode
Total 210 minutes	

Make sure you set "AUTO SP→LP TIMER" to "ON" at the Mode Set screen before the timer-recording starts.

ACCESS MAIN MENU SCREEN

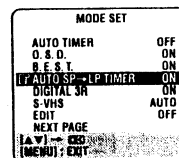
Press MENU.

ACCESS MODE SET SCREEN

Press Δ / ∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.

SELECT MODE

Press Δ / ∇ to move the highlight bar (pointer) to "AUTO SP→LP TIMER", then press OK or $\triangleright$ to select "ON".



RETURN TO NORMAL SCREEN

Press MENU.

NOTES:

- The Auto SP→LP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly with any tapes longer than E-180 or with some tapes of shorter lengths.
- If you have programmed the recorder to timer-record 2 or more programmes, the second programme and those thereafter may not fit on the tape if you set "AUTO SP→LP TIMER" to "ON". In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.
- In order to ensure that the recording fits on the tape, this feature may leave a short non-recorded section at the end of the tape.
- There may be some picture noise and sound disturbance at the point on the tape where the recorder switches from SP to LP mode.
- If you perform timer recording with both PDC and the Auto SP→LP Timer activated, and the programme goes beyond its originally scheduled length, there may be times when the programme cannot be recorded in its entirety.

Auto Timer

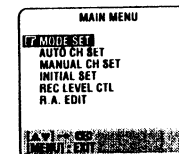
When the Auto Timer is set to ON the timer is automatically engaged when the recorder power is turned off and automatically disengaged when the recorder is powered back on.

ACCESS MAIN MENU SCREEN

Press MENU.

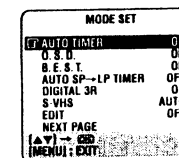
ACCESS MODE SET SCREEN

Press Δ / ∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.



SELECT MODE

Press OK or $\triangleright$ to select either "ON" or "OFF".

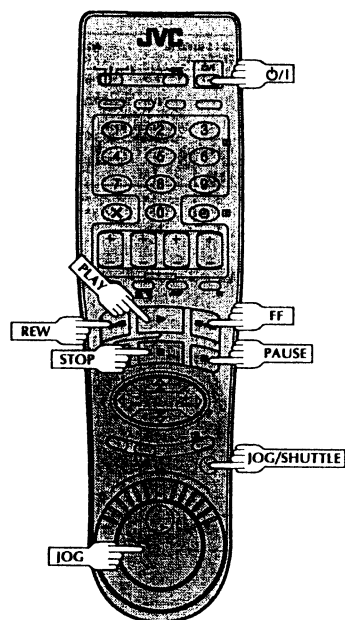


RETURN TO NORMAL SCREEN

Press MENU.

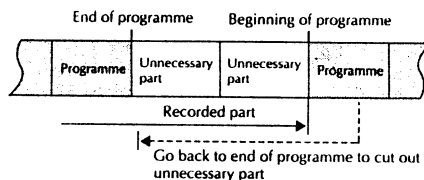
NOTE:

For safety, when Auto timer is set to "OFF", all other recorder functions are disabled while the Timer mode is engaged. To disengage the timer, press $\odot$ (TIMER).



Retake

You can cut out unnecessary parts of a TV programme while you're recording it.



1 ENGAGE RECORD-PAUSE MODE

Press PAUSE during recording.

2 LOCATE START POINT

First press JOG/SHUTTLE and turn the JOG dial (or hold down REW or FF) and release it when you reach the point where you want to resume recording.
* Your recorder returns to the Record-Pause mode.

3 RESUME RECORDING

Press PLAY when you wish to resume recording.

Repeat Playback

Your video recorder can automatically play back the whole tape 50 times repeatedly.



1 START PLAYBACK

Press PLAY.

2 ACTIVATE REPEAT PLAYBACK

Press PLAY and hold for over 5 seconds, then release.

- The Play indicator (▶) on the display panel blinks slowly.
- The tape plays 50 times automatically, and then stops.

3 STOP PLAYBACK

Press STOP at any time to stop playback.

NOTE:

Pressing PLAY, REW, FF or PAUSE also stops Repeat Playback.

NTSC Playback

Your video recorder is equipped with NTSC circuitry that can play back NTSC tapes.

1 LOAD A CASSETTE

Insert a cassette recorded in NTSC.

2 START PLAYBACK

Press PLAY.

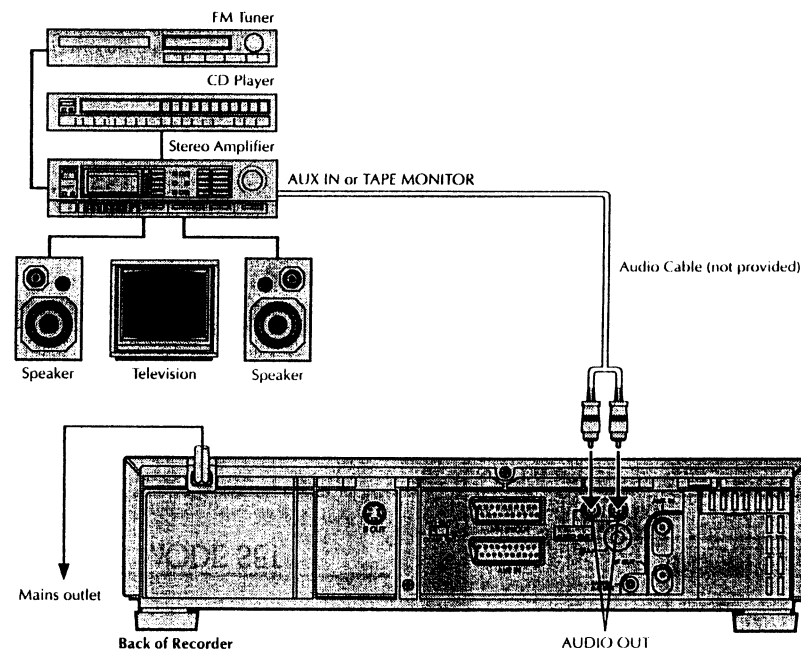
- "NTSC→PAL" appears on the screen for about 5 seconds.
- Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.
- The picture may roll up and down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)
- The counter and tape remaining time readings will be incorrect.
- During search, still, or frame-by-frame playback, the picture will be distorted, and there may be a loss of colour.
- Depending on the type of TV, the top and bottom portions of superimposed displays may be cut off during NTSC playback.

Next Function Memory

You can set your recorder's power to go off automatically after the tape is fully rewound. Before starting, make sure the recorder is in the Stop mode.
For Automatic Power Off After Tape Rewind . . .
... press REW, then press O/I within 2 seconds.

Connection To A Stereo System

These instructions enable you to connect your video recorder to your Hi-Fi stereo system (if you have one) and listen to the soundtrack through the stereo.



1 MAKE CONNECTIONS

Connect the AUDIO OUT L and R connectors on your video recorder to the AUX IN or TAPE MONITOR terminals on your stereo system's receiver or amplifier.

NOTES:

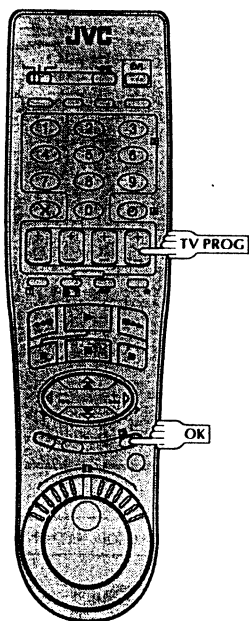
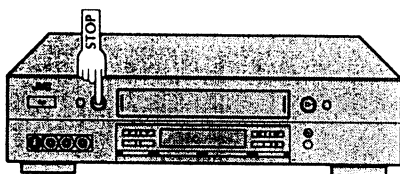
- When connecting your recorder's audio output connectors to a stereo amplifier, make sure you connect L and R correctly.
- If you can receive NICAM TV broadcasts in your area, this recorder can record them independently of the TV set and play them back through the connected stereo system.
- When listening to sound through the connected stereo system, turn the TV's volume down completely.

CAUTIONS:

- This recorder has a dynamic range of more than 80 dB with regards to its Hi-Fi audio capability. It is recommended that you check the maximum level if you are going to listen to the Hi-Fi audio signals through a stereo amplifier. A sudden surge in the input level to the speakers may damage them.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set as this can adversely affect the video playback picture.

Video Channel Set

Video Channel (RF Output Channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.



IMPORTANT

Perform the following steps only if —
 — Video Channel Set has not been done correctly by the Auto Set Up function (see pg. 8).
 — interference appears in the TV picture after you have moved to a different area or a new station has started broadcasting in your area.
 — you change the connection between your recorder and TV from RF connection to AV or S-VIDEO connection, or vice versa.

- If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection), or via the provided RF cable, the provided S-Video cable and an audio cable (S-VIDEO connection), you do not need the video channel so you have to set the video channel to off. — Go to "With AV or S-VIDEO Connection" below.
- If you have connected the video recorder to your TV via the provided RF cable only (RF connection), you have to set the correct video channel — Go to "With RF Connection" on page 47.

With AV or S-VIDEO Connection

Before performing the following procedure, make sure that:

- the mains power cord is plugged into the mains outlet.
- the video recorder is turned off and there is no cassette inserted in the recorder.
- batteries have been installed in the remote control.

1 ACCESS VIDEO CHANNEL SET MODE

Press and hold down STOP on the recorder until the display panel shows the following.



2 SET VIDEO CHANNEL

Press TV PROG — until the display panel shows *_OUT--.



- Now the video channel is set to off.

3 EXIT VIDEO CHANNEL SET MODE

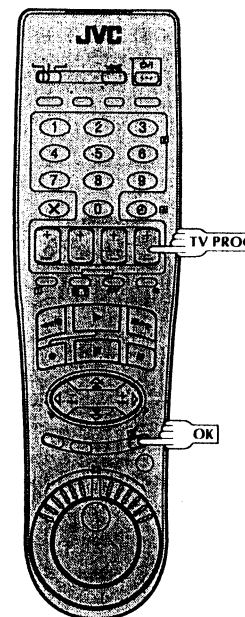
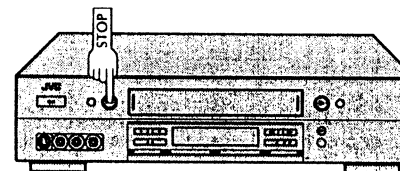
Press OK.

To view picture signals from the video recorder, set your TV to its AV mode. Refer to the instructions supplied with your TV set for how to do this.

With RF Connection

Before performing the following procedure, make sure that:

- the mains power cord is plugged into the mains outlet.
- the video recorder is turned off and there is no cassette inserted in the recorder.
- the connected TV is turned on.
- batteries have been installed in the remote control.



1 ACCESS VIDEO CHANNEL SET MODE

Press and hold down STOP on the recorder until the display panel shows the following.



2 SET VIDEO CHANNEL

Press TV PROG+ or — to set the video recorder to a vacant channel between 22 and 69 which is not occupied by any local station in your area. Refer to list on page 54 for details of broadcast stations in your area.

(Ex.) If channel 36 is available in your area



Then set your TV to UHF channel 36. (Refer to the instructions supplied with your TV set for how to do this.)

- If the two vertical white bars appear clearly on the screen as shown in the illustration at bottom left, go to step 3.
- If the two vertical white bars do not appear clearly, re-set the video recorder to another vacant channel and try again.

IMPORTANT

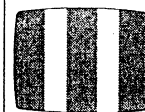
- If you set the video recorder to a channel which is occupied by a local station or has neighbouring channels that are occupied by local stations, the picture reception quality will be affected and some interference noise will appear on the TV screen. Be sure to select a vacant channel which has no broadcast on neighbouring channels.
- If you cannot obtain the two vertical white bars clearly with any channel between 22 and 69, consult your JVC dealer.

3 EXIT VIDEO CHANNEL SET MODE

Press OK.

To view picture signals from the video recorder, set your TV to the Video Channel.

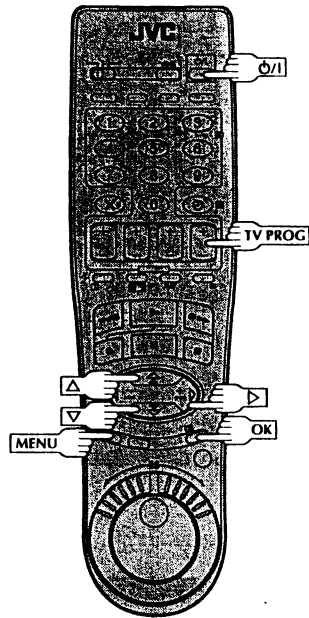
TEST SIGNAL



The channel on which the screen on the left appears clearly in step 2 is your Video Channel.

Tuner Set

Turn on the TV and select the VIDEO channel (or AV mode).



IMPORTANT

Perform the following steps only if —
— Auto Channel Set has not been set correctly by Auto Set Up function (see pg. 8).
— you have moved to a different area or if a new station starts broadcasting in your area.

Your recorder needs to memorise all necessary stations in preset positions in order to record TV programmes. Auto Channel Set automatically assigns all receivable stations in your area to call them up by using the TV PROG buttons without going through any vacant channel.

Auto Channel Set

TURN ON THE RECORDER

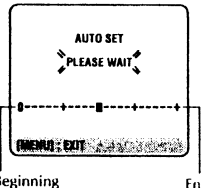
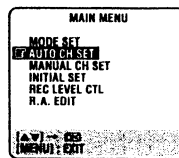
Press ϕ/I .

ACCESS MAIN MENU SCREEN

Press MENU.

PERFORM AUTO CHANNEL SET

Move the highlight bar (pointer) to "AUTO CH SET" by pressing Δ/∇ , then press OK or $\triangleright$.



- The Auto Set screen appears, and remains on screen while the recorder searches for receivable stations. As Auto Channel Set progresses, the "■" mark on the screen moves from left to right. Wait until the screen as shown in step 4 appears.
- Auto Channel Set usually takes about 4 – 12 minutes; the duration varies by area.

VIEW CONFIRMATION SCREEN

4

After "SCAN COMPLETED" is displayed on the screen for about 5 seconds, a Confirmation screen looking like the one on the right appears. The stations your recorder located appear on a Confirmation screen — preset positions (PR), channels (CH) and station names (ID — see pg. 53). The blueback screen and the programme currently being broadcast by the station which is blinking appear alternately for 8 seconds each.

To view the next page, use the Δ/∇ $\triangleleft/\triangleright$ button on the remote control.

- The Guide Program numbers will also be set automatically during Auto channel Set.

PR	CH	ID	PR	CH	ID
01	23	ITV	08	---	---
02	33	ITV	09	---	---
03	23	ITV	10	---	---
04	30	CH4	11	---	---
05	37	CH5	12	---	---
06	---	---	13	---	---
07	---	---	14	---	---

RETURN TO NORMAL SCREEN

Press MENU.

5

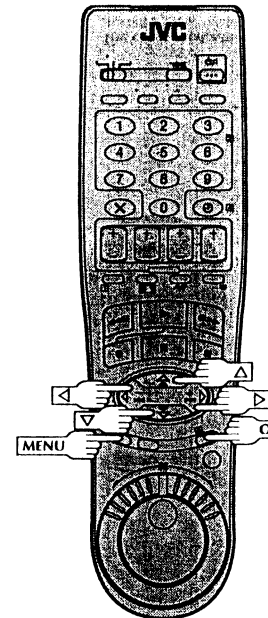
- Using the Confirmation screen, you can skip or add preset positions, enter station names and perform other operations. Refer to pages 50 – 54 for the procedures.
- Depending on reception conditions, the stations may, on occasion, not be stored in order, and the station names may not be stored correctly.

IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using Video Plus+, the recorder will record a TV programme of a different station. When programming the timer using Video Plus+, be sure to check that the preset position corresponding to the broadcasting station you wish to record has been selected (see pg. 14, "Video Plus+ Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations which have an unacceptable picture see "Delete A Channel" on page 51.

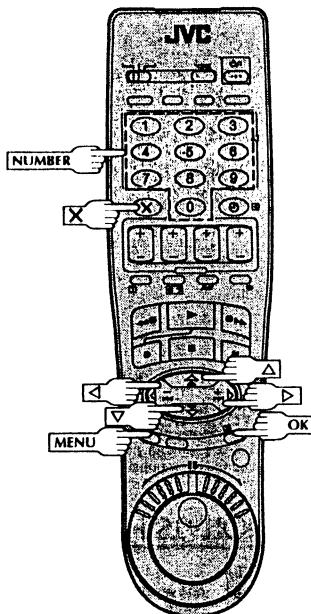
NOTES:

- Fine tuning is performed automatically during Auto Channel Set. If you wish to perform it manually, refer to page 51.
- If, for any reason, you perform Auto Channel Set when the aerial cable is not connected properly, "SCAN COMPLETED -NO SIGNAL-" appears on the screen in step 4. When this happens, make sure of the aerial connection and press OK; Auto Channel Set will take place again.



Storing Channels Manually

To store channels that were not stored during Auto Set Up (pg. 8) or Auto Channel Set (pg. 48).



ATTENTION

After you have stored channels manually, be sure to perform Guide Program Number Set (pg. 56) in order to get proper results from Video Plus+ timer recording.

1 ACCESS MAIN MENU

Press MENU.

2 ACCESS CONFIRMATION SCREEN

Press $\Delta \nabla$ to move the highlight bar (pointer) to "MANUAL CH SET", then press OK or $\triangleright$. The Confirmation screen appears.

3 SELECT POSITION

Press $\Delta \nabla \triangleleft \triangleright$ until an open position in which you want to store a channel begins blinking, then press OK. The Manual Channel Set screen appears.

(Ex.) To store in position 6.

PR	CH	ID	PR	CH	ID
01	26	BBC1	08	---	---
02	33	BBC2	09	---	---
03	23	ITV	10	---	---
04	30	CH4	11	---	---
05	37	CH5	12	---	---
06	---	---	13	---	---
07	---	---	14	---	---

The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

4 INPUT CHANNEL

Press the NUMBER keys to input the channel number you want to store.

- To input the registered station name (ID - pg. 53), press $\triangleright$ until "----" (ID setting) begins blinking, then press $\Delta \nabla$.

- For fine tuning adjustment, press $\triangleright$ until "+/-" begins blinking, then press $\Delta \nabla$. While tuning, "+" or "-" appears.

PR	CH	ID	FINE
06	CH2	---	---

The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

5 ENTER NEW CHANNEL INFORMATION

Press OK and the Confirmation screen appears.

- Repeat steps 3 through 5 as necessary.

6 CLOSE CONFIRMATION SCREEN

Press MENU.

- To change positions, see "Change Station Preset Position" (pg. 51).
- If you wish to set station names other than the ones registered in your recorder, pg. "Set Stations (B)" on page 52.

Delete A Channel

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen before continuing.

1 SELECT ITEM

Press $\Delta \nabla \triangleleft \triangleright$ until the item you want to delete begins blinking.

2 DELETE CHANNEL

Press X.

- The item directly beneath the cancelled one moves up one line.
- Repeat steps 1 and 2 as necessary.

3 CLOSE CONFIRMATION SCREEN

Press MENU.

Change Station Preset Position

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen before continuing.

1 SELECT ITEM

Press $\Delta \nabla \triangleleft \triangleright$ until the item you want to move begins blinking. Then press OK and the station name (ID) and its channel (CH) number begin blinking.

2 SELECT NEW POSITION

Press $\Delta \nabla \triangleleft \triangleright$ to move the station to the new preset position, then press OK.

Example: If you moved the station in position 4 to position 2, the stations originally in positions 2 and 3 each move down one space.

PR	CH	ID	PR	CH	ID
01	26	BBC1	08	---	---
02	23	ITV	09	---	---
03	30	CH4	10	---	---
04	33	BBC2	11	---	---
05	37	CH5	12	---	---
06	---	---	13	---	---
07	---	---	14	---	---

- Repeat steps 1 and 2 as necessary.

3 CLOSE CONFIRMATION SCREEN

Press MENU.

ATTENTION

After you have deleted channels or changed preset positions, be sure to perform Guide Program Number Set (pg. 56) in order to get proper results from Video Plus+ timer recording.

Fine-Tuning Channels Already Stored

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen before continuing.

1 SELECT CHANNEL TO FINE-TUNE

Press $\Delta \nabla \triangleleft \triangleright$ until the channel you want to tune begins blinking.

2 ACCESS MANUAL CHANNEL SET SCREEN

Press OK twice. The Manual Channel Set screen appears.

3 PERFORM TUNING

Press $\triangleright$ until "+/-" begins blinking, then press $\Delta \nabla$ until the picture is clearest. Then press OK.

- The Confirmation screen appears.
- Repeat steps 1 through 3 as necessary.

4 CLOSE CONFIRMATION SCREEN

Press MENU.

Set Stations (A)

Set station names that are registered in your recorder.

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen before continuing.

SELECT ITEM

Press Δ ∇ $\triangleleft$ $\triangleright$ until the item you want begins blinking.

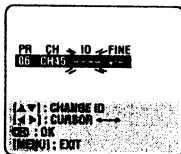
ACCESS MANUAL CHANNEL SET SCREEN

Press OK twice.

SELECT NEW STATION

Press $\triangleright$ until the station name (ID) begins blinking, then press Δ ∇ until the new station's name (ID) you want to store begins blinking.

Registered station names (see pg. 53) appear as you press Δ ∇ .



SWITCH STATIONS

Press OK.

- The Confirmation screen appears.
- Repeat steps 1 through 4 as necessary.

CLOSE CONFIRMATION SCREEN

Press MENU.

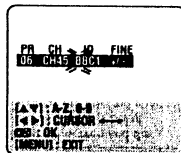
Set Stations (B)

Set station names other than the ones registered in your recorder.

Perform steps 1 and 2 of "Storing Channels Manually" on page 50 to access the Confirmation screen and then perform steps 1 and 2 of "Set Stations (A)" on the left before continuing.

SELECT STATION NAME CHARACTER

Press $\triangleright$ until the first letter of the station name begins blinking.



ENTER NEW CHARACTER

Press Δ ∇ to cycle through the characters (A-Z, 0-9, -, *, +, — (space)) and stop when the desired character is indicated, then press $\triangleright$ to enter. Enter the remaining characters the same way (maximum of 4).

After entering all characters, press OK.

- The Confirmation screen appears.
- If you make a mistake, press $\triangleleft$ until the incorrect character begins blinking. Then enter the correct character by pressing Δ ∇ .

CLOSE CONFIRMATION SCREEN

Press MENU.

TV Station And ID List

STATION NAME	ID*
Anglia TV	ANGL
ARD	ARD
ARTE	ARTE
BBC Group	BBC
BBC1	BBC1
BBC2	BBC2
Berlin 1	BLN1
Berlin 2	BLN2
Border TV	BORD
Bayern1	BR1
Bayern3	BR3
BRT1	BRT1
BRT2	BRT2
Children Ch	CHLD
Canal +	CH+
CNN	CNN
Channel TV	CHNL
Central TV	CNTR
Channel 4	CH4
Channel 5	CH5
DRS	DRS
DR TV	DRTV
DSF	DSF
Euronews	EURN
Euronews	EURN
Eurosports	EURS
France1	FR1
France2	FR2
France3	FR3
Granada TV	GRNA
Grampian TV	GRMP
Hessen1	HR1
Hessen3	HR3
HRT	HRT
HTV	HTV
ITV Network	ITV
Kabelkanal	KABL
London	LNDN
MDR	MDR
MIV	MIV
Nord3	N3
NDR1	NDR1
NDR3	NDR3
NLD1	NLD1
NLD2	NLD2
NED3	NED3
Network 2	NET2
NRK	NRK
N-TV	N-TV
Offener Kanal	OKAN
ORF1	ORF1
ORF2	ORF2
ORF3	ORF3
OWI 3	OWI3
Premiere	PRM1
PRO7	PRO7
RAI1	RAI1
RAI2	RAI2
RAI3	RAI3
RB1	RB1
RB3	RB3
Rikisutvarpid-S	RKPS
RTBF 1	RTB1
RTBF 2	RTB2
RTE 1	RTE1
RTL	RTL
RTL 2	RTL2
RTP	RTP

STATION NAME	ID*
SAI	SAI
SAI 1	SAI1
Scottish TV	SCOT
SC4	SC4
SDR	SDR
SDR1	SDR1
SFB1	SFB1
SFB3	SFB3
SKY	SKY
Sky One	SKY1
Sky Net	SKYN
Sport	SPRT
SR 1	SR1
Super RTL	SRTL
STV Test	STVT
STV 1	STV1
STV 2	STV2
Suedwest3	SW3
SWF 1	SWF1
Schweiz4	SWZ4
TYNE TEES	TEES
Text	TEX1
TF1	TF1
INT int	INT
IRI int	IRI
ISI	ISI
ISR	ISR
TSW	TSW
TVE	TVE
TV Polonia	TVPA
TVP 1	TVP1
TVP 2	TVP2
TVS	TVS
TV2	TV2
TV5	TV5
Tele Zurich	TZUR
Ulster TV	ULST
Veronica	VERN
VIVA	VIVA
VIVA2	VIV2
VOX	VOX
VTM	VTM
VT4	VT4
West1	WJUR1
West3	WJUR3
YLE 1	YLE1
YLE 2	YLE2
Yorkshire TV	YORK
ZDF	ZDF
Zurich 1	ZUR1
3SAT	3SAT

* The "ID" abbreviation is what is shown on-screen in lieu of the station name. The "ID" abbreviation is listed in the Confirmation screen and is displayed on the TV screen each time the recorder is tuned to a different station.

TV Station Channel Number Guide

For customers in the U.K.

Only the main stations are listed. There are in addition many relay stations, and full lists are available from the BBC and ITV.

	BBC1	BBC2	ITV	CH4	CH5
London & South-East					
Bluebell Hill	40	46	43	65	—
Crystal Palace	26	33	23	30	37
Dover	50	56	66	53	—
Heathfield	49	52	64	67	—
Oxford	57	63	60	53	49

South-West					
Beacon Hill	57	63	60	53	—
Caradon Hill	22	28	25	32	—
Huntshaw Cross	55	62	59	65	67
Redruth	51	44	41	47	37
Stockland Hill	33	26	23	29	—
Channel Islands					
Fremont Point	51	44	41	47	—

South					
Hannington	39	45	42	66	35
Midhurst	61	55	58	68	—
Rowridge	31	24	27	21	—

West					
Mendip	58	64	61	54	37

East					
Sandy Heath	31	27	24	21	39
Sudbury	51	44	41	47	35
Tacolneston	62	55	59	65	52

Midlands					
Ridge Hill	22	28	25	32	35
Sutton Coldfield	46	40	43	50	37
The Wrekin	26	33	23	29	35
Waltham	58	64	61	54	35

North					
Belmont	22	28	25	32	56
Emley Moor	44	51	47	41	37

North-West					
Caldbeck	30	34	28	32	56
Winter Hill	55	62	59	65	48

North-East					
Bilsdale West Moor	33	26	29	23	35
Chatton	39	45	49	42	—
Pontop Pike	58	64	61	54	68

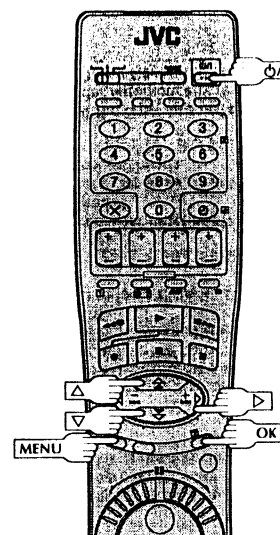
Scotland					
Angus	57	63	60	53	—
Black Hill	40	46	43	50	37
Sandale	22	—	—	—	—
Caldbeck	—	34	28	32	56
Creigkelly	31	27	24	21	48
Darvel	33	26	23	29	35
Durris	22	28	25	32	67
Eitshal	33	26	23	29	—
Keelylang Hill	40	46	43	50	—
Knock More	33	26	23	29	—
Rosemarkie	39	45	49	42	67
Rumster Forest	31	27	24	21	—
Selkirk	55	62	59	65	52

Wales					
Blaenplwyf	31	27	24	21	56
Carmel	57	63	60	53	—
Llanddona	57	63	60	53	—
Moel-y-Parc	52	45	49	42	—
Presely	46	40	43	50	37
Wenvoe	44	51	41	47	—

Northern Ireland					
Brougher Mountain	22	28	25	32	—
Divis	31	27	24	21	37
Limavady	55	62	59	65	—

Clock Set

Turn on the TV and select the VIDEO channel (or AV mode).



Just Clock

The Just Clock function provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal.

The Just Clock option can be set "ON" or "OFF" at the Clock Set screen (the default setting is "ON"). Press OK until the Just Clock setting begins blinking, then press $\Delta \nabla$ to change the setting.

IMPORTANT: If you turn the Just Clock function off, the accuracy of your recorder's built-in clock may be impaired, which could adversely affect timer recording.

NOTES:

- Just Clock (when set to "ON") adjusts the recorder's built-in clock every hour, except for 23:00, 0:00, 1:00 and 2:00.
- Just Clock is not effective when ...
 - the recorder's power is on.
 - the recorder is in the Timer mode.
 - a difference of more than 3 minutes exists between the built-in clock's time and the actual time.
 - the recorder is in the Auto Satellite Prog Rec mode (pg. 28).
- If Just Clock is set to "ON", the recorder's clock is automatically adjusted at the start/end of Summer Time.
- Just Clock may not function properly in poor reception conditions.

IMPORTANT

If you performed Auto Set Up (pg. 8) or Auto Channel Set (pg. 48), without ever having set the clock previously, the recorder's built-in clock is also set automatically. Perform the following steps only if —

- Auto Clock Set has not been performed correctly by Auto Set Up or Auto Channel Set.
- or
- the recorder's memory backup has expired.
- or
- you want to change Just Clock setting ("Just Clock" in the left column).

TURN THE RECORDER ON

Press ϕ/I .

ACCESS MAIN MENU SCREEN

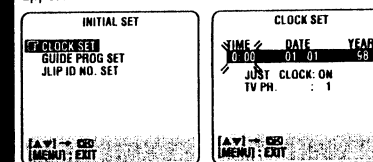
Press MENU.

ACCESS INITIAL SET SCREEN

Move the highlight bar (pointer) to "INITIAL SET" by pressing $\Delta \nabla$, then press OK or $\triangleright$.

ACCESS CLOCK SET SCREEN

Move the highlight bar (pointer) to "CLOCK SET" by pressing $\Delta \nabla$, then press OK or $\triangleright$. The Clock Set screen appears.



SET DATE AND TIME

Press $\Delta \nabla$ to set the time, then press OK or $\triangleright$. The "date" display begins blinking. Repeat the same procedure to set the date and year.

- When you set the time, press and hold $\Delta \nabla$ to change the time by 30 minutes.
- When you set the date, press and hold $\Delta \nabla$ to change the date by 15 days.

SET JUST CLOCK

The default setting is "ON". Set as desired by pressing $\Delta \nabla$, then press OK or $\triangleright$.

- For the Just Clock function, "Just Clock" on the left.
- If you set to "OFF", you can disregard the next step as you won't be able to receive regular clock adjustments.

SET CLOCK DATA SOURCE PRESET

The recorder is preset to receive clock setting and adjustment data from preset position 1. Press $\Delta \nabla$ to set the preset position to the number representing the station transmitting clock setting data (BBC1, BBC2, etc.), then press OK or $\triangleright$.

START CLOCK OPERATION

Press MENU.

Video Plus+ Setup

IMPORTANT

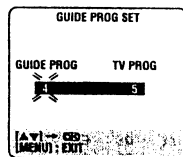
Normally, Auto Set Up (pg. 8) or Auto Channel Set (pg. 48) sets the Guide Program Numbers automatically. You need to set the Guide Program Numbers manually only in the following cases.

- When timer-programming with Video Plus+, the preset position, where the station you wish to record is received on your recorder, is not selected.
- Set the Guide Program Number for that station manually.
- When you add/delete a channel or change preset positions manually after Auto Set Up or Auto Channel Set has taken place.
- Set the Guide Program Numbers for all the receivable stations manually.
- When you wish to timer-record a satellite programme with Video Plus+.
- Set the Guide Program Numbers for all satellite broadcasts received on your satellite receiver.

Turn on the TV and select the VIDEO channel (or AV mode).

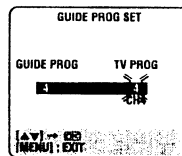
Guide Program Number Set

- 1 ACCESS MAIN MENU SCREEN**
Press MENU.
- 2 ACCESS INITIAL SET SCREEN**
Press Δ to move the highlight bar (pointer) to "INITIAL SET", then press OK or $\triangleright$.
- 3 ACCESS GUIDE PROG SET SCREEN**
Press Δ to move the highlight bar (pointer) to "GUIDE PROG SET", then press OK or $\triangleright$.
- 4 ENTER GUIDE PROG NUMBER**
Press Δ or NUMBER keys to enter the Guide Program number for the desired station as shown in the TV listings. Then press OK or $\triangleright$.



(Ex.) When inputting the Guide Program number 4 for CH4.

- 5 ENTER RECEIVING PRESET POSITION NUMBER**
Press Δ or NUMBER keys to input the number of the recorder's preset position on which the Guide Program number's broadcast is received. Then press OK or $\triangleright$.
 - If the satellite broadcast is received on your recorder's auxiliary channel "L-2", select "L-2" for the preset position.
 - Repeat steps 4 and 5 as necessary.
- 6 RETURN TO NORMAL SCREEN**
Press MENU.



(Ex.) If CH4 is received on preset position 4.

Guide Program Number

"Guide Program (GUIDE PROG) number" refers to the assigned TV station numbers, according to broadcast area, for Video Plus+ timer recording. The Guide Program numbers can be found in most TV listings.

Questions And Answers

PLAYBACK

- Q. What happens if the end of the tape is reached during playback or search?**
A. The tape is automatically rewound to the beginning.
- Q. Can the video recorder indefinitely remain in the still mode?**
A. No. It stops automatically after 5 minutes to protect the heads.
- Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?**
A. No, it is normal.

- Q. Other than preventing further recording, what effect does removing the Record Safety tab have?**
A. It disables marking of index codes.
- Q. Sometimes, during Index Search, the video recorder can't find the programme I want to see. Why not?**
A. There may be index codes too close together.

RECORDING

- Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the beginning of the continuation of recording. Why does this happen?**
A. This is normal. It reduces distortion at the pause and resume points.
- Q. Can the video recorder indefinitely remain in the Record-Pause mode?**
A. No. The video recorder shuts off automatically after 5 minutes to protect the heads.
- Q. What happens if the tape runs out during recording?**
A. The video recorder automatically rewinds it to the beginning or, if Timer Recording, the cassette is ejected.

TIMER RECORDING

- Q. "O" and "E" remain lit on the display panel. Is there a problem?**
A. No. This is a normal condition for a timer recording in progress.
- Q. Can I programme the timer while I'm watching a tape or a TV broadcast?**
A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the program or tape you're viewing can be heard.
- Q. Is it possible to timer-record a TV programme broadcast in 2000?**
A. Yes, it is possible.

ATTENTION

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the recorder off and unplug the mains power cord. Then plug it in again and turn the recorder on. Take out the cassette. After checking the cassette, operate the unit as usual.

Troubleshooting

Before requesting service for a problem, use this chart to see if you can correct the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your video recorder off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is applied to the recorder.	• The mains power cord is disconnected.	Connect the mains power cord.
2. The clock is functioning properly, but the recorder cannot be powered.	• "⊙" is displayed on the display panel with Auto Timer set to "OFF".	Press the ⊙ button to turn the "⊙" indicator off.
3. The remote control won't function.	• The batteries are discharged. • The VCR/TV/SAT switch is in the wrong position.	Replace the dead batteries with new ones. Set the switch to the position corresponding with the unit you want to operate.

TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape does not run during recording.	• "⏏" is displayed on the display panel.	Press PLAY to turn the "⏏" indicator off.
2. The tape will not rewind or fast-forward.	• The tape is already fully rewound or fast-forwarded.	Check the cassette.

PLAYBACK

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The playback picture does not appear while the tape is running.	• If you're using the RF OUT connection the TV receiver's channel selector is not set to the VIDEO channel. ... the recorder's VIDEO channel has not been correctly set. • If you're using the AV or S-VIDEO connection, the TV receiver is not set to the AV mode.	If you are using the RF OUT connection set the TV receiver to the VIDEO channel. (⌘ pg. 8) ... Perform "Video Channel Set" (⌘ pg. 46) If you are using the AV or S-VIDEO connection, set the TV to its AV mode.
2. Noise appears during visual search.	• This is normal during visual search other than TimeScan.	
3. Noise appears during normal playback.	• The automatic tracking mode is engaged.	Try manual tracking (⌘ pg. 22).
4. The playback picture is blurred or interrupted while TV broadcasts are clear.	• The video heads may be dirty.	Consult your JVC dealer.
5. Breaks are noticeable in Hi-Fi soundtrack.	• Automatic tracking is engaged.	Engage and adjust tracking manually. (⌘ pg. 22)

RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	• There is no cassette loaded, or the cassette loaded has had its Record Safety tab removed.	Insert a cassette, or using adhesive tape, reseal the slot where the tab was removed.
2. TV broadcasts cannot be recorded.	• "L-1", "L-2", "F-1" or "S-1" has been selected as the input mode.	Set to the desired preset.
3. Tape-to-tape editing is not possible.	• The source (another video recorder, camcorder) has not been properly connected. • All necessary power switches have not been turned on. • The input mode is not correct.	Confirm that the source is properly connected. Confirm that all units' power switches are turned on. Set the input mode to "L-1", "L-2", "F-1" or "S-1".

4. Camcorder recording is not possible.

- The camcorder has not been properly connected.
- The input mode is not correct.

Confirm that the camcorder is properly connected.
Set the input mode to "L-1", "L-2", "F-1" or "S-1".

TIMER RECORDING

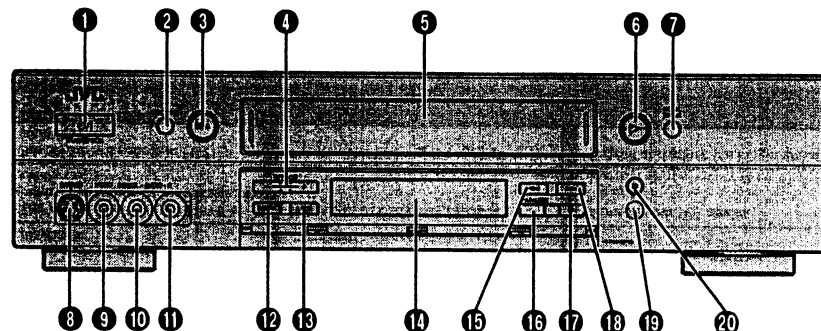
SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	• The clock and/or the timer have been set incorrectly. • The timer is not engaged.	Re-perform the clock and/or timer settings. Press ⊙ and confirm that "⊙" is displayed on the display panel.
2. Timer programming is not possible.	• Timer recording is in progress.	Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.
3. "⊙" and "⏏" on the display panel won't stop blinking.	• The timer is engaged but there's no cassette loaded.	Load a cassette with the Record Safety tab intact, or cover the hole using adhesive tape.
4. The cassette is automatically ejected, and "⊙" and "⏏" on the display panel won't stop blinking.	• The loaded cassette has had its Record Safety tab removed.	Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the Record Safety tab intact.
5. "⊙" blinks for 10 seconds and the Timer mode is disengaged.	• ⊙ has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly.	Check the programmed data and re-programme as necessary, then press ⊙ again.
6. The cassette is automatically ejected, the power shuts off and "⊙" and "⏏" won't stop blinking.	• The end of the tape was reached during timer recording.	The programme may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire programme.
7. Video Plus+ does not timer-record properly.	• The recorder's preset positions have been set incorrectly.	Refer to "Guide Program Number Set" and re-perform the procedure (⌘ pg. 56).

OTHER PROBLEMS

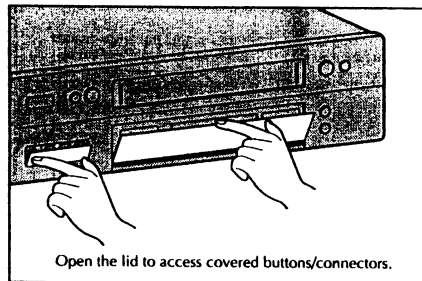
SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Whistling or howling is heard from the TV during camcorder recording.	• The camcorder's microphone is too close to the TV. • The TV's volume is too high.	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
2. When scanning channels, some of them are skipped over.	• Those channels have been designated to be skipped.	If you need the skipped channels, restore them (⌘ pg. 50).
3. The preset cannot be changed.	• Recording is in progress.	Press PAUSE to pause the recording, change presets, then press PLAY to resume recording.
4. Channel settings that were made manually seem to have changed or disappeared.	• After the manual settings were made, Auto Channel Set was performed.	Perform manual setting again.
5. No channels are stored in the recorder's memory.	• The TV aerial cable was not connected to the recorder when Auto Set Up was performed.	Connect the TV aerial cable to the recorder properly and turn off the recorder power once, then turn the recorder power back on again. The recorder will try Auto Set Up again (⌘ pg. 8).
6. The remote control won't operate the TV or satellite receiver.	• The remote control brand setting is incorrect.	Re-set the remote control to the correct brand (⌘ pg. 30, 31).

Index

FRONT VIEW

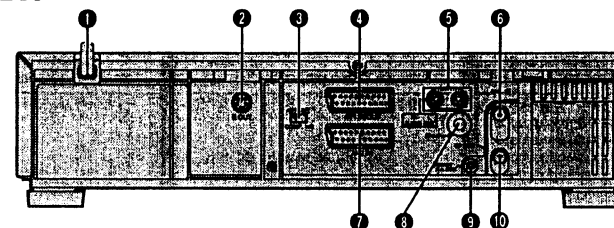


Attach the provided connector cover when you do not use the front panel connectors.



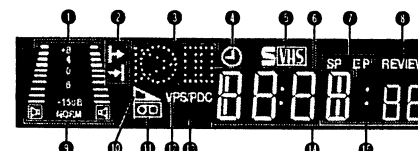
- 1 **STANDBY/ON** ϕ /I Button turns recorder on/off (loading a cassette also turns power on).
- 2 **REC LINK** Button enables/disables the Auto Satellite Prog Rec mode. pg. 29
- 3 **STOP/EJECT** Button stops tape; ejects tape during Stop mode. pg. 10
- 4 **TV PROG +/-** Buttons select a preset position. pg. 12
- 5 **Cassette Loading Slot** is where cassette is inserted; door closes, "cassette loaded" indicator lights up on front display panel.
- 6 **PLAY** Button plays back tape pg. 10 ; cancels Pause, Still, Slow, Search modes. pg. 11
- 7 **DIGITAL TBC/NR** Button enables/disables Digital TBC/NR pg. 22
- 8 **S-VIDEO Input Connector** enables S-VIDEO connection to camcorder or second recorder. pg. 33
- 9 **VIDEO Input Connector** enables easy connection of video output from another recorder or camcorder for editing. pg. 33
- 10 **AUDIO Input Connector [L]** enables easy connection of audio output (mono) from another recorder, camcorder or other source for editing. pg. 33
- 11 **AUDIO Input Connector [R]** enables easy connection of audio output (Hi-Fi) from another recorder, camcorder or other source for editing. pg. 33
- 12 **INSERT** Button engages Insert Editing mode pg. 39
- 13 **A. DUB** Button engages Audio Dubbing mode. pg. 40
- 14 **Display Panel** provides clear view of various displays and indicators. pg. 61
- 15 **Rewind [REW]** Button rewinds tape; initiates high-speed reverse search. pg. 10, 11
- 16 **SPATIALIZER** Button enables/disables Spatializer[®]. pg. 27
- 17 **RECORD** Button starts regular recording (press once), Instant Timer Recording (press twice); sets duration of ITR. pg. 12, 13
- 18 **Fast Forward [FF]** Button fast-forwards tape; initiates high-speed forward search. pg. 10, 11
- 19 **Infrared Beam Receiving Window** is where remote control should be aimed when in use.
- 20 **PAUSE** Button stops tape temporarily during recording pg. 12 ; stops tape temporarily during playback; plays back frame by frame with each additional press. pg. 11

REAR VIEW



- 1 **Mains Power Cord** supplies power to recorder. pg. 6, 7
- 2 **S OUT Connector** enables S-VIDEO connection to TV or second recorder. pg. 7, 34
- 3 **AV1 OUT Switch** selects the type of signal output via the 21 pin AV1 IN/OUT connector. pg. 6, 28
- 4 **AV1 IN/OUT Connector** enables AV connection to TV or second recorder; input recordable when "L-1" selected. pg. 6, 34
- 5 **AUDIO OUT (L/R) Connectors** enable connection of audio cassette recorder, TV or second video recorder for dubbing. pg. 45
- 6 **ANT. IN Connector** enables connection of aerial. pg. 6, 7
- 7 **AV2 IN Connector** enables connection of satellite receiver or second recorder; input recordable when "L-2" selected. pg. 28, 34
- 8 **J Terminal (JLIP (Joint Level Interface Protocol) Connector)** enables connection of a personal computer or similar device to allow computerized control of the recorder during editing and certain other operations. pg. 41
- 9 **Remote PAUSE Connector** enables connection to second recorder equipped with R.A. Edit connector, or to JVC camcorder equipped with Master Edit Control, for easy editing. pg. 33
- 10 **R.A. EDIT Connector** enables connection to second recorder equipped with Remote PAUSE connector for easy editing. pg. 36
- 11 **RF OUT Connector** enables connection to aerial terminal of TV receiver. pg. 6, 7

DISPLAY PANEL



- 1 **B.E.S.T. Picture System Display** lights from bottom to top while B.E.S.T. is active. pg. 20
- 2 **Audio Level Indicator** displays audio input and output levels. pg. 27
- 3 **Programme Time Indicators** show the programme start time (H:M) and the programme stop time (H:M) for timer-recording. pg. 16
- 4 **Symbolic Mode Indicators**
- 5 **"Timer" Indicator** lights when ϕ has been pressed to engage Timer mode. pg. 15, 17
- 6 **Channel Display** shows preset position where the station currently being received is stored.
- 7 **Clock Display** shows current time. pg. 9
- 8 **S-VHS Indicator** lights when a cassette marked S-VHS is inserted with S-VHS mode set to "AUTO", and when an S-VHS-recorded tape is played back. pg. 19
- 9 **Tape Speed Indicators** display mode of recording; light during Record or Play mode. pg. 12
- 10 **Instant REVIEW Indicator** blinks after timer-recording and shows how many programmes have been timer-recorded. pg. 23
- 11 **Audio Mode Indicator** displays audio output mode currently selected. pg. 26
- 12 **Tape Remaining Time Indicator** displays time remaining on tape when certain buttons are pressed. pg. 13
- 13 **"Cassette Loaded" Mark** lights once a cassette is inserted; remains lit until cassette ejected or power turned off.
- 14 **PDC Indicator** lights when PDC has been engaged for timer recording. pg. 15, 17
- 15 **Counter** shows time elapsed since playback or recording began.

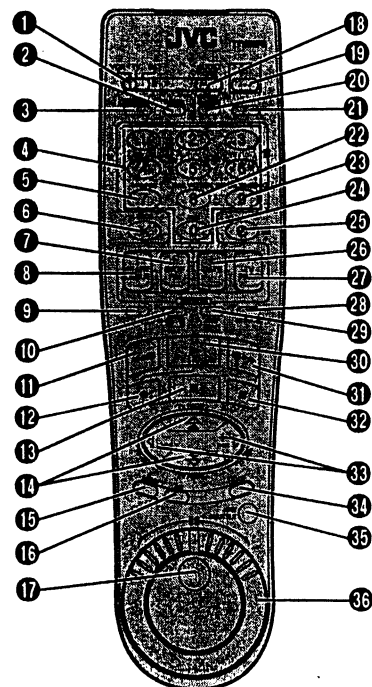
PLAY: FF/REW VARIABLE SHUTTLE SEARCH:	STILL: SLOW: RECORD: RECORD PAUSE:	
AUDIO DUBBING:		
AUDIO DUBBING PAUSE:		
INSERT:		
INSERT PAUSE:		
AUDIO DUBBING INSERT:		
AUDIO DUBBING INSERT PAUSE:		

* VPS (Video Programme System) recording is not currently available in the U.K. and not possible with this recorder.

* Preset Position is not displayed during playback.

Mode shows external input mode selected (L-1, L-2, F-1 or S-1).

REMOTE CONTROL



Buttons with a small dot on the left side of the name can also be used to operate your TV. *See* pg 30.

- ❶ **VCR/TV/SAT Switch** enables remote control of VCR or connected TV or satellite receiver. *See* pg. 30, 31
- ❷ **TV/VCR Button** switches connected TV's mode between TV and AV. *See* pg. 30
- ❸ **REVIEW Button** "reviews" timer-recorded programme. *See* pg. 23
- ❹ **NUMBER Keys** are used in preset position selection *See* pg. 12, Video Plus+ timer programming *See* pg. 14.
- ❺ **PDC Button** enables/disables PDC recording. *See* pg. 15, 17
* VPS (Video Programme System) recording is not currently available in the U.K. and not possible with this recorder.
- ❻ **X Button** cancels timer-programme. *See* pg. 18
- ❼ **0000 Button** resets counter to 0:00:00. *See* pg. 13
- ❽ **STOP +/- Button** inputs programme Stop Time. *See* pg. 16
- ❾ **START +/- Button** accesses Regular Program screen; inputs programme Start Time. *See* pg. 16
- ❿ **PROG Button** accesses Video Plus+ Program screen. *See* pg. 14
- ⓫ **⊙ ? Button** accesses Program screens/displays to check the programme that you have programmed (next programme's information screen/display appears each time button is pressed). *See* pg. 18
- ⓬ **Rewind [REW] Button** — same as button on recorder. *See* pg. 10, 11
- ⓭ **Record Button** — same as button on recorder. *See* pg. 12
- ⓮ **Stop Button** — same as button on recorder. *See* pg. 10
- ⓯ **Δ▽ Button** is used for selection in on-screen menus. *See* pg. 19
- ⓰ **TV PROG +/-** selects the connected TV's/satellite receiver's channel. *See* pg. 30, 31
- ⓱ **MENU Button** accesses Menu screen. *See* pg. 19
- ⓲ **A/B Code Button** enables setting of recorder to respond to A- or B-code command signals. *See* pg. 31
- ⓳ **JOG Dial** plays back frame by frame during Still or Play mode. *See* pg. 11
- ⓴ **AUDIO Button** changes output sound mode. *See* pg. 26
- ⓵ **⏸ (TV Muting) Button** mutes sound of connected TV. *See* pg. 30
- ⓶ **STANDBY/ON ⏻/⏻ Button** — same as button on recorder.
- ⓷ **ENTER Button** is used for TV channel selection. *See* pg. 30

- ⓸ **-- -- (DISPLAY) Button** switches display between clock time, tape remaining time, counter readings and preset position*. *See* pg. 13
* Preset position is not displayed during playback.
- ⓹ **DAILY Button** enables timer recording of daily serials. *See* pg. 15, 17
- ⓺ **WEEKLY Button** enables timer recording of weekly serials. *See* pg. 15, 17
- ⓻ **AUX Button** selects recorder's auxiliary input mode. *See* pg. 33, 34
- ⓼ **⏻ Button** engages timer-standby mode. *See* pg. 15, 17
- ⓽ **DATE +/- Button** inputs date of programme for timer recording. *See* pg. 16
- ⓿ **TV PROG +/- Button** — same as button on recorder. *See* pg. 12
- ⓾ **30 SEC Button** initiates a 30-second period of fast-motion playback. *See* pg. 23
- ⓿ **Auto Tracking Button (///)** enables/disables auto tracking mode during playback *See* pg. 22
- ⓿ **SP/LP Button** selects tape speed. *See* pg. 12
- ⓿ **Play Button** — same as button on recorder. *See* pg. 10, 11
- ⓿ **Fast Forward [FF] Button** — same as button on recorder. *See* pg. 10, 11
- ⓿ **Pause Button** — same as button on recorder. *See* pg. 11
- ⓿ **⏮ Button** initiates functions such as Index Search *See* pg. 23, variable-speed search, frame by frame playback. *See* pg. 11, 24
- ⓿ **TV ⏮ +/- Button** controls volume of connected TV. *See* pg. 30
- ⓿ **OK Button** enters selections made in on-screen menus. *See* pg. 19
- ⓿ **JOG/SHUTTLE Button** enables use of the remote control's JOG dial/SHUTTLE ring. *See* pg. 11
- ⓿ **SHUTTLE Ring** performs forward and reverse slow-motion and search during Still or Play mode. *See* pg. 11

How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets and satellite receivers of JVC and other brands. *See* pg. 30, 31.

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

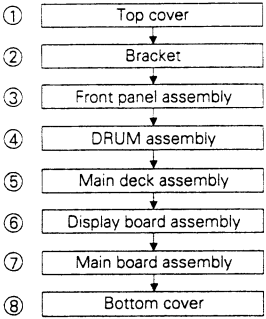
NOTES:

- When inserting the batteries, be sure to insert in the correct directions as indicated under the battery cover.
- If the remote control doesn't work properly, remove its batteries, wait a short time, replace the batteries and then try again.

SECTION 1
DISASSEMBLY

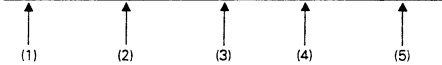
1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	3(S1)	<NOTE 1>
②	BRACKET	D2	2(S2)	
③	FRONT PANEL ASSEMBLY	D3	7(L1)	<NOTE 2> <NOTE 3>



- (1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
- (2) Part name to be removed or installed.
- (3) Fig.No. showing procedure or part location
- (4) Identification of part to be removed,unhooked,unlocked, released,unplugged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
- (5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BRACKET	D2	2(S3)	
③	FRONT PANEL ASSEMBLY	D3	2(S4),9(L1),WR2, 2(L2),WR1, *CN7191,*CN7192, JACK BOARD	<NOTE 1> <NOTE 2>
④	DRUM ASSEMBLY	D4	3(S5),CN1,CN3301, VWR3,VWR4,4(L3), (L4),(P1) INERTIA PLATE ROLLER ARM ASSY	<NOTE 2>
⑤	MAIN DECK ASSEMBLY	D5	2(S6),2(S7),WR5 2(L5),*CN4001	<NOTE 3>
⑥	DISPLAY BOARD ASSEMBLY	D6	8(L6), *CN7001, REC SAFETY BOARD (L7)	<NOTE 4>
⑦	MAIN BOARD ASSEMBLY	D7	(S8), 2(S9)	
⑧	BOTTOM COVER	D8	2(S10),4(L8), 7(L9),4(L10)	

- <NOTE1>
- Before attaching the Front panel assembly, ensure that the door opener ④ is in the lowered position.

- <NOTE2>
- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

- <NOTE3>
- When it is required to remove the screws (S6) retaining the Main deck assembly, please refer to the "Procedures for Lowering the Cassette holder assembly"(See on pages 1-3).
 - The Main deck assembly is also retained by two spacers on the Main board. Therefore, to remove the Main deck assembly, insert radio pliers or a similar tool from the main deck side and pinch the two hooks of the spacers while removing.
 - When attaching the Main deck assembly, be careful not to damage the sensors and switches on the Main board (D3001: LED, Q3001: Start sensor, Q3002: End sensor S3003 : S cassette switch).

- <NOTE4>
- The REC safety board assembly is attached to the Display board assembly. It is therefore necessary to remove the REC safety board assembly before removing the Display board assembly.
 - When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

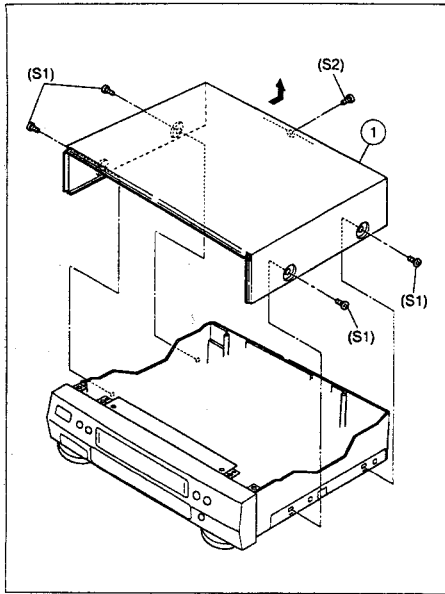


Fig. D1

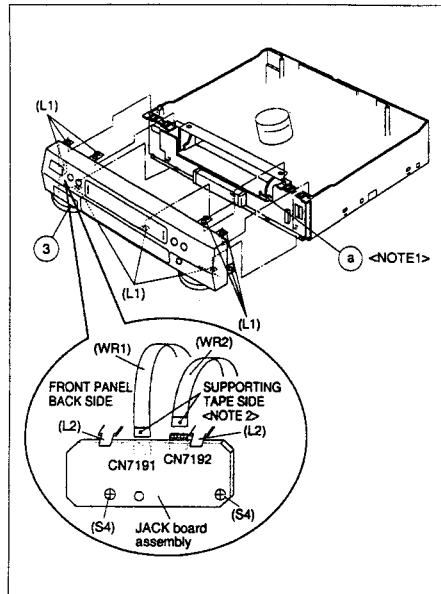


Fig. D3

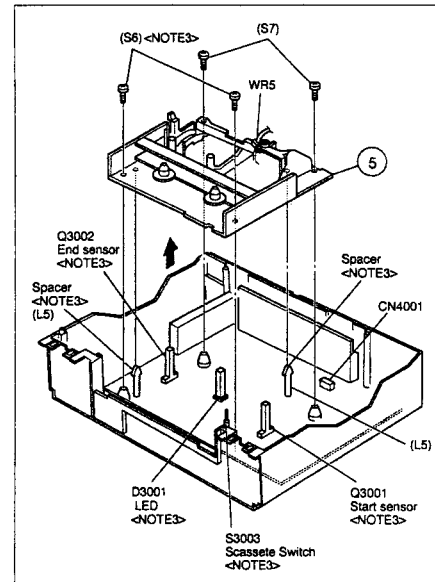


Fig. D5

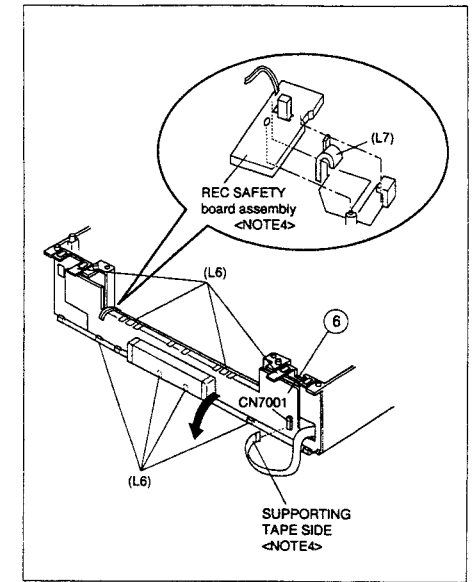


Fig. D6

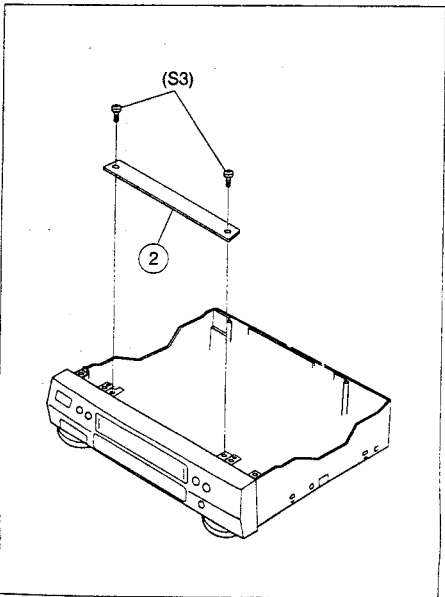


Fig. D2

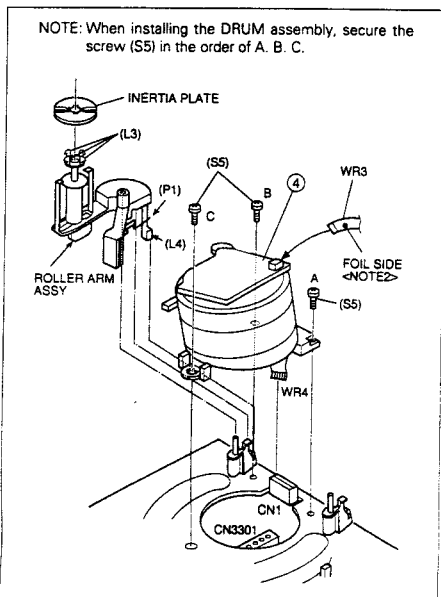


Fig. D4

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two bolts unscrewed when removing the Main deck assembly.

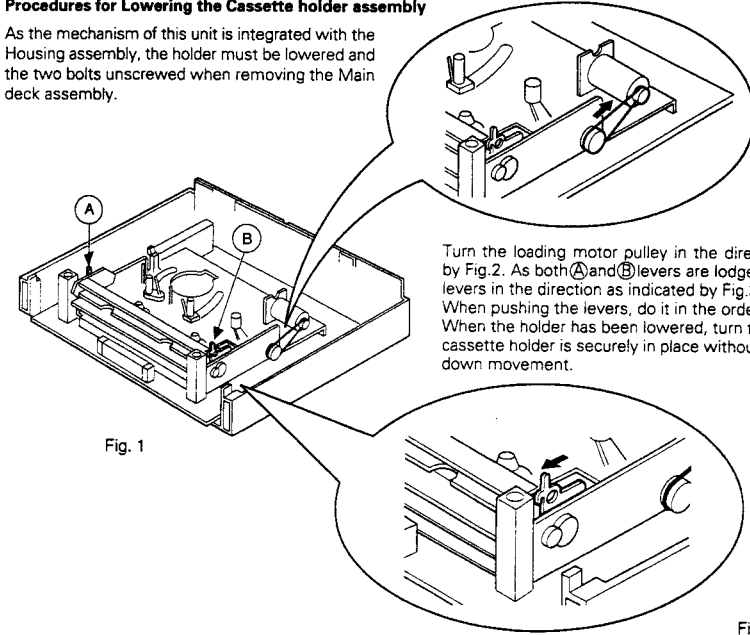


Fig. 1

Turn the loading motor pulley in the direction as indicated by Fig.2. As both (A) and (B) levers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of (A), (B), (A). When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

Fig. 2

Fig. 3

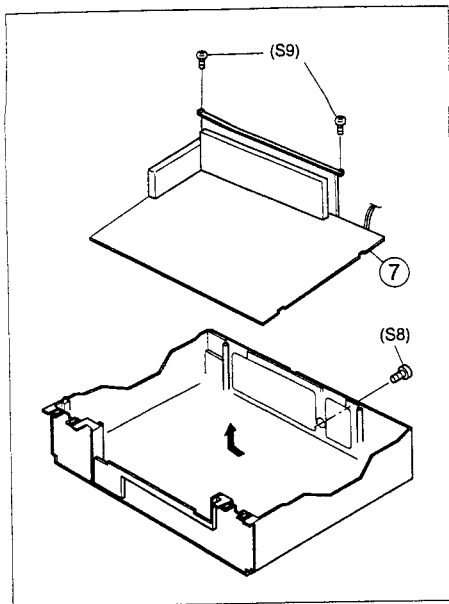


Fig. D7

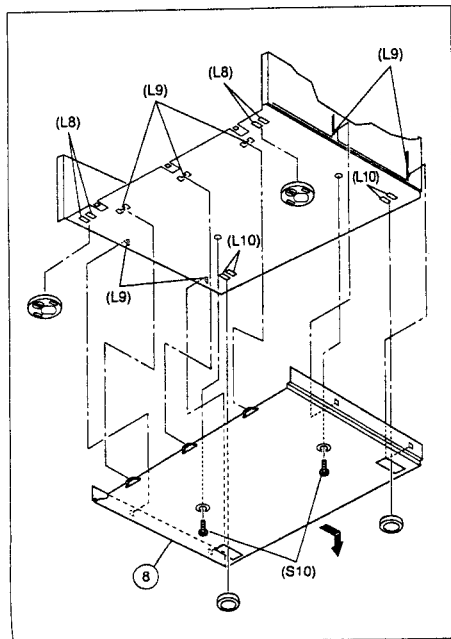


Fig. D8

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Main deck assembly, this unit is constructed so as to allow the Main deck and the Main board assemblies to be removed together from the Chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

- (1) Remove the Top cover, Bracket, Front panel assembly and JACK board assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD. Take care not to pull the drum wire (Fig.D4) from CN1).
- (2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Main deck assembly (Refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD).
- (3) Take out 2 screws (A) and 2 screws (B) as shown in Fig. 1-4-1.
- (4) Take out 2 screws (C) and take out 1 screw (D) to install the Bottom cover (See Fig. 1-4-1).

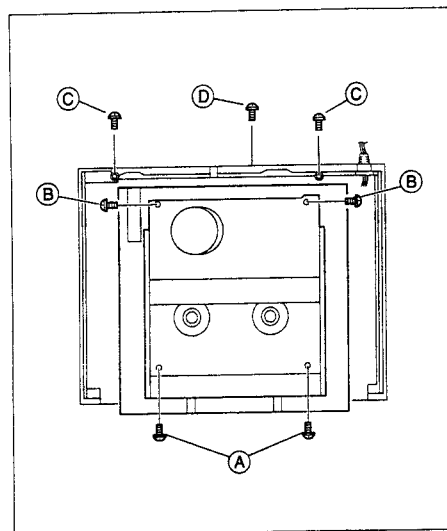


Fig. 1-4-1

- (5) While holding the edge of the Main board, and remove the Main board and Main deck assemblies together. At this stage be careful of the power cord and prongs of the jacks on the back side (See Fig. 1-4-2).
- (6) Remove the Display board assembly and REC safety board (See 1.3 DISASSEMBLY/ASSEMBLY METHOD), then place them on the front side of the Main deck assembly and Main board assembly which have been deassembled at the procedure (6) and place the Jack board on the left side of the Main deck assembly and Main board assembly. Then connect the flat wires into CN7001 of the Display board assembly, CN7191 and CN7192 of the JACK board assembly (See Fig. 1-4-3).

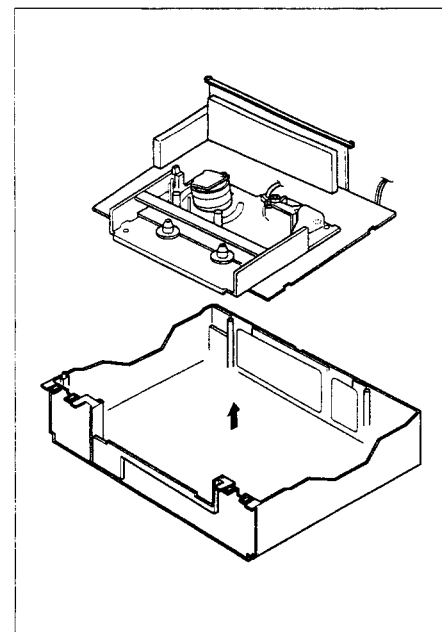


Fig. 1-4-2

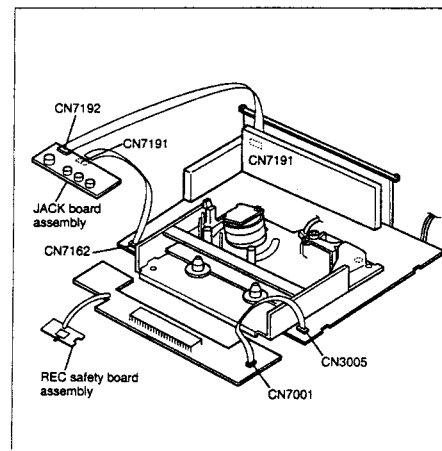


Fig. 1-4-3

- (7) Connect the power cord to the wall socket, and lift the cassette holder.
(Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)

Note: When carrying out diagnosis and repair of the Main board assembly in the service position, be sure to ground both the Main board and the Main deck assemblies.

If they are improperly grounded, there may be noise on the playback picture or the FDP counter display may move even when the mechanism is kept in an inoperative status.

1.4.2 Precautions for cassette loading in the "SERVICE POSITION"

The REC safety board assembly detects cassette loading as well as cassette tabs. Therefore, after the assembly has been removed in the "SERVICE POSITION", it is required to set the switch manually on the REC safety board assembly when a cassette is loaded.

1.4.3 Cassette loading and ejection methods in the "SERVICE POSITION" (See Fig. 1-4-3).

- (1) Insert a cassette halfway in the Cassette holder assembly.
- (2) Set the switch on the REC safety board assembly to ON (by pressing the switch).
- (3) As soon as the cassette starts to be loaded, set the switch on the REC safety assembly to OFF (by releasing the switch).
- (4) Now the desired operation (recording, playback, fast forward, rewind, etc.) is possible in this status (the status shown in Fig. 1-4-3).

NOTES:

- When performing diagnostics of the tape playback or recording condition in the "SERVICE POSITION", enter the desired mode before turning the set upside down, and do not change the mode during diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position (the status shown in Fig. 1-4-3).
- In the "SERVICE POSITION", the cassette tabs cannot be detected and recording becomes possible even with a cassette with broken tabs such as the alignment tape. Be very careful not to erase important tapes.

- (5) The switch on the REC safety board assembly does not have to be operated when ejecting a tape. But be sure to turn the set to the normal position before ejecting the tape.

1.5 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.5.1 How to set the "MECHANISM SERVICE MODE"

- (1) Disconnect VCR from AC.
- (2) Connect TPGND and TP7001(TEST) on the Display board assembly with a jump wire.
- (3) Connect VCR to AC.
- (4) Set the power switch to ON.
- (5) With lock levers (A)(B) on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers (A)(B), refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (6) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

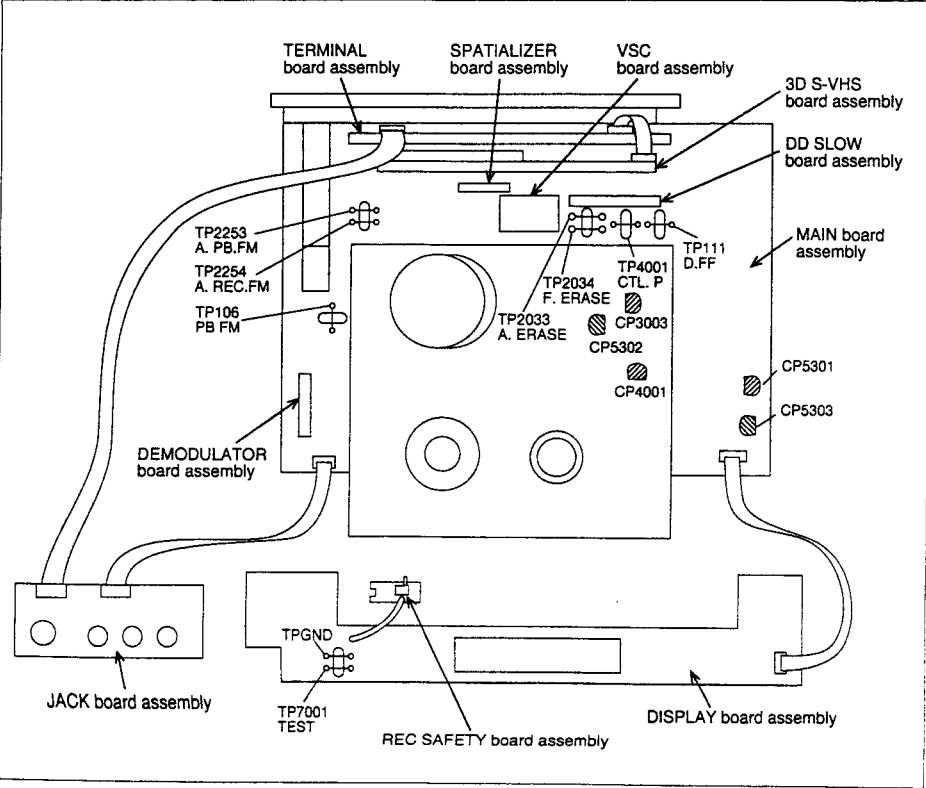


Fig. 1-5-1

1.6 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

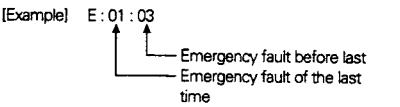
1.6.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

1.6.1 How to display record of an emergency faults

Note: Put the unit into A mode by using the VCR remote control. (When it is in B mode, the preset remote control codes are not accepted.)

- (1) Press "N" button of the presetting unit more than 2 seconds and the two previous emergency faults are shown in the LED or FDP.
- (2) Press "N" button of the presetting unit again to return to the normal mode.



[Example] E : — : — — ← No record of emergency

1.6.2 Detail of emergency faults

EMG DATA	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	TU REEL FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent. (for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 06	CAPSTAN FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF
E : 08	Initialized action of DD (Dynamic Drum) is not complete for less than 4 seconds.	Connect VCR to AC	STOP
E : 09	DD drive motor is not rotate for more than 2.5 seconds.	on TIME SCAN	STOP

Table 1-6-1 EMERGENCY FAULTS

1.7 SYSCON CIRCUIT

1.7.1 Syscon CPU pin function (IC3001) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	IND(L)	IN	AUDIO INPUT(LCH) FOR THE FDP AUDIO INDICATOR
2	IND(R)	IN	AUDIO INPUT(RCH) FOR THE FDP AUDIO INDICATOR
3	PERI 1S	IN	INPUT FOR THE TERMINAL SLID SW POSI IN THE SAT MODE
4	INDEX	IN/OUT	DETECTION SIGNAL FOR SERVO INDEX
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 KHz)
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	RESET	-	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	PS SECAM(H)	-	NC
15	LOCK(L)	IN	(TUNING PLL LOCK DETECT:L)
16	SYNC DET	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
17	PWER DOWN	IN	DETECTION SIGNAL FOR POWER DOWN
18	SQ REC(L)	OUT	S-VHS ET REC MODE CONTROL (REC:L)
19	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
20	R.PAUSE	IN	REMOTE PAUSE CONTROL
21	SECAM DET	-	NC
22	NC	-	NC
23	A.WIDE	OUT	SPATIALIZER CTL
24	A.EFFECT	OUT	SPATIALIZER CTL
25	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE ON:H)
26	TS BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO SUB
27	TS CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO SUB
28	TM CLOCK	OUT	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
29	TM CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	TM DATA0	IN/OUT	DATA ON THE BUS LINE
32	TM DATA1	IN/OUT	DATA ON THE BUS LINE
33	TM DATA2	IN/OUT	DATA ON THE BUS LINE
34	TM DATA3	IN/OUT	DATA ON THE BUS LINE
35	TM DATA4	IN/OUT	DATA ON THE BUS LINE
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE
37	TM DATA6	IN/OUT	DATA ON THE BUS LINE
38	TM DATA7	IN/OUT	DATA ON THE BUS LINE
39	H.REC(H)	OUT	HIFI AUDIO REC MODE CONTROL SIGNAL (REC:H)
40	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL(REC:H)

Table 1-7-1 SYSCON CPU pin function(1/2)

1.7.2 Syscon CPU pin function (IC3001) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	MS_RESET	OUT	RESET SIGNAL FOR THE MECHANISM CONTROL IC(IC3301)
42	CNR_ON(H)	OUT	CNR ON SIGNAL(ON:H)
43	TU DATA	OUT	TUNING DATA
44	D_MUTE(H)	OUT	TUNER MUTE SIGNAL (MUTE:H)
45	SECAM TU ON(L)	OUT	TUNER "L" SYSTEM MODE:H
46	TU CE	OUT	CHIP ENABLE OF THE TUNER UNIT
47	TU CLOCK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
48	DK(H)/FORCE(L)	OUT	TUNER SYSTEM "DK" MODE : H
49	SECAM VLI(H)	OUT	TUNER SYSTEM "L" MODE : L
50	RCIN	IN	DATA INPUT OF THE REMOTE CONTROL UNIT
51	NTSC(H)	OUT	TUNER SYSTEM "NTSC" MODE:H
52	FULL_E_ON(H)	OUT	REC MODE:H
53	V.SYNC	IN	INPUT FOR THE VIDEO SYNC
54	P.SAVE(L)	OUT	POWER SAVE:L
55	CCIR(L)	OUT	EXCEPT FOR NTSC:L
56	OSD CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
57	S2-OUT	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
58	S2-IN	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO FDP DRIVER
59	S2-CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
60	INSERT(L)	OUT	SIMPLE INSERT MODE:L
61	STB	OUT	PERMISSION SIGNAL FOR CLOCK OUTPUT (STROBE SIGNAL)
62	SPH/PSL	OUT	SECAM → PAL CONVERT:H
63	VCC	-	SYSTEM POWER
64	SEC TR(H)	OUT	SECAM SPECIAL PLAYBACK:H
65	TITLE REC	-	NC
66	NC	-	NC
67	CTL_CLOCK	IN	LINEAR TIME COUNTER INPUT
68	SECAM(H)	OUT	COLOR SYSTEM SECAM:H
69	I2C DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR EE PROM
70	I2C CLOCK	IN/OUT	SERIAL DATA TRANSMISSION CLOCK FOR EE PROM
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SHTLB	IN	INPUT FOR THE JOG SHUTTLE
74	SHTL(L)/SHTLA	IN	INPUT FOR THE JOG SHUTTLE
75	JSA	IN	INPUT FOR THE JOG SHUTTLE
76	JSB	IN	INPUT FOR THE JOG SHUTTLE
77	RF AGC	-	NC
78	REC LEVEL V	OUT	OUTPUT FOR REC LEVEL CTL
79	AFT/S.CURVE	IN	TUNING CHECK
80	SCRAMBLE(H)	IN	INPUT FOR 8-PIN OF AV2

Table 1-7-2 SYSCON CPU pin function(2/2)

1.7.3 Syscon CPU pin function (IC3301) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	A.ENV/ND(L)	IN	INPUT THE AVERAGE OF FMA PLAYBACK SIGNAL-A (AUTO TRACKING AND FMA NON-RECORD DETECTION)
2	VIDEO ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
3	6.5H DET	IN	6.5H DETECTION SIGNAL FOR SERVO CIRCUIT
4	RECSF	IN	DETECTION SIGNAL FOR REC SAFETY/CASSETTE INSERT SWITCH
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 KHz)
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	MS_RESET	-	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	LSC	IN	MECHANISM MODE DETECT SWITCH (C)
15	LSB	IN	MECHANISM MODE DETECT SWITCH (B)
16	LSA	IN	MECHANISM MODE DETECT SWITCH (A)
17	RAE OUT	OUT	RAE TERMINAL FOR PAUSE OUT
18	C/M E06	OUT	SPEED CONTROL FOR CAP MOTOR
19	S.SENS	IN	START SENSOR
20	E.SENS	IN	END SENSOR
21	I2C CLOCK	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
22	TU FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
23	SP FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
24	CTL CLOCK	IN	CONTROL PULSE INPUT
25	I2C DATA	IN/OUT	I/O DATA FOR MEMORY IC
26	LCM1	OUT	MODE MOTOR DRIVE CONTROL
27	LCM2	OUT	MODE MOTOR DRIVE CONTROL
28	LCM3	OUT	MODE MOTOR DRIVE CONTROL
29	TM CS	IN	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM CLOCK	IN	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	SLOW P	OUT	MEMORY TIMING CONTROL IN THE SLOW MODE
32	LP SHORT(H)	-	NC
33	SP SHORT(H)	-	NC
34	TM DATA7	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
35	TM DATA6	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
37	TM DATA4	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
38	TM DATA3	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
39	TM DATA2	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
40	TM DATA1	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL

Table 1-7-3 SYSCON CPU pin function(1/2)

1.7.4 Syscon CPU pin function (IC3301) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	TM DATA0	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
42	TM BUSY	OUT	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
43	N REC START(H)	OUT	NORMAL AUDIO SOUND RECORDING START
44	H REC START(L)	OUT	HIFI AUDIO SOUND RECORDING START
45	VPCTL	OUT	*V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK*
46	P.CTL(H)	OUT	CONTROL SIGNAL FOR SW POWER SUPPLY
47	EE(L)	OUT	EE/PB CONTROL (EE MODE:L)
48	FLY E ON(H)	OUT	FLYING ERASE CONTROL
49	VSC CLOCK	OUT	SERIAL DATA TRANSFER CLOCK OUTPUT FOR VSC IC
50	VSC DATA	OUT	SERIAL DATA OUTPUT FOR VSC IC
51	R-Y REV	OUT	D.FF TIMING CONTROL SIGNAL FOR SPECIAL PLAYBACK
52	CTL C/D	IN	DETECTION SIGNAL FOR CONTROL PULSE MODE/TAPE RUNNING/BLANK
53	DDFG	IN	DYNAMIC DRUM FG INPUT
54	DDSPDCTL	OUT	DYNAMIC DRUM SPEED CONTROL
55	DDCREV	OUT	DYNAMIC DRUM CONTROL(REVERS)
56	DDCFWD	OUT	DYNAMIC DRUM CONTROL(FORWARD)
57	VIDEO DATA	OUT	TRI-R DATA
58	SP(L)	OUT	SP MODE:L
59	VIDEO CLK	OUT	TRI-R CLK
60	E.P.CTL/IP ON(H)	OUT	VIDEO SYSTEM CTL IN THE BEST MODE/IP CTL
61	V.UP(H)	OUT	HIGH SPEED FF/REW TURBO SEARCH:H
62	TRICK	OUT	SPECIAL PLAYBACK:H
63	VCC	-	SYSTEM POWER
64	SLOW_REV	OUT	PRO SLOW REV(H)
65	1/2_EP/3.58NTSC	OUT	PRO SLOW CTL
66	S_DATA	OUT	SERVO SERIAL DATA OUTPUT
67	CAP REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
68	DUTY I/O	IN/OUT	DETECTION SIGNAL FOR INDEX DATA
69	CAP FG	IN	DETECTION SIGNAL FOR MODE/TAPE RUNNING/BLANK
70	PAUSE(L)	OUT	STOP CONTROL SIGNAL FOR CAPSTAN MOTOR
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SCASS	IN	DETECTION SIGNAL FOR S-VHS CASSETTE
74	SB-G	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
75	DRUM V	OUT	VOLTAGE CONTROL SIGNAL FOR DRUM MOTOR DRIVE
76	CAP V	OUT	VOLTAGE CONTROL SIGNAL FOR CAPSTAN MOTOR SPEED
77	DD ABS	IN	DYNAMIC DRUM POSITION DETECT
78	SI(H)	OUT	S-VHS MODE:H
79	HEAD.SEL	OUT	HEAD SELECT (EP HEAD:H/SP HEAD:L)
80	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY

Table 1-7-4 SYSCON CPU pin function(2/2)

SECTION 2 MECHANISM ADJUSTMENT

2.1 BEFORE STARTING REPAIR AND ADJUSTMENT

2.1.1 Precautions

- (1) Unplug the power cable of the main unit before using your soldering iron.
- (2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
- (3) Do not randomly handle the parts without identifying where the trouble is.
- (4) Exercise enough care not to hurt yourself, especially your finger nails, during the repair work.
- (5) When installing the front panel assembly, be sure to hook the lug on the back side of cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2.1.2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE)

2.1.3 Manually Removing the Cassette Tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

- (1) Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD)
- (2) Unload the cassette by manually turning the unloading motor of the main deck assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-1)
- (3) Bring the pole base assembly (on the supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.
- (4) Move the top plate toward the drum while holding down the lug (A) of the bracket retaining the top plate. Likewise hold part (B) down and remove the top plate. The spring plate (C) is then brought under the cassette lid. Then remove the top plate by pressing the whole cassette tape down. (Note 1) (See Fig.2-1-2).
- (5) Remove the cassette tape by holding both the slackened tape and the cassette lid.
- (6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

Note: The spring plate of the top plate is sharp-edged. Take care not to hurt yourself.

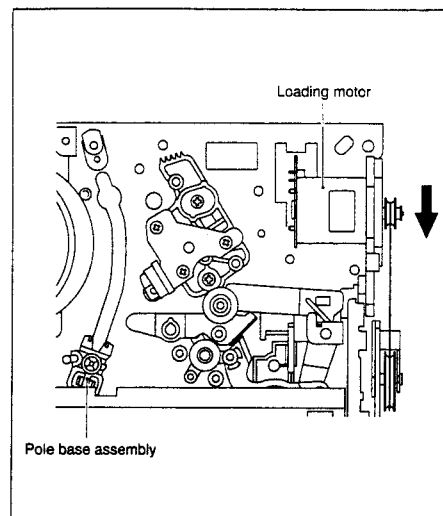


Fig. 2-1-1

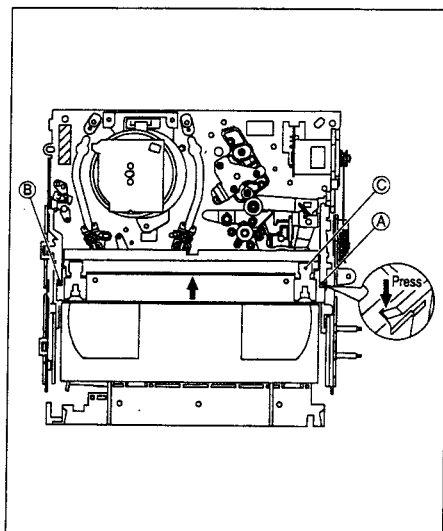


Fig. 2-1-2

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

- (1) Unplug the power cable and remove the top cover, bracket and front panel assembly (See 1.3 DISASSEMBLY/ASSEMBLY METHOD).
- (2) While keeping the tension arm of the main deck assembly free from tension, pull the tape on the pole base assembly out of the guide roller (on the supply or take-up side) (See Fig.2-1-3).

- (3) Remove the top plate as done in Step (4) of "1. In case of electrical failures" and remove the guide pole cap at the same time. (See Fig.2-1-4).
- (4) While lifting the cassette tape lid, hold the cassette tape case and pinch roller by the fingers and move them toward the loading motor to relieve pressure on the tape. Then remove the tape while taking the cassette case out of the cassette holder. (See Fig.2-1-4).
- (5) Re-place the guide pole cap and take up the slack of the tape into the cassette.

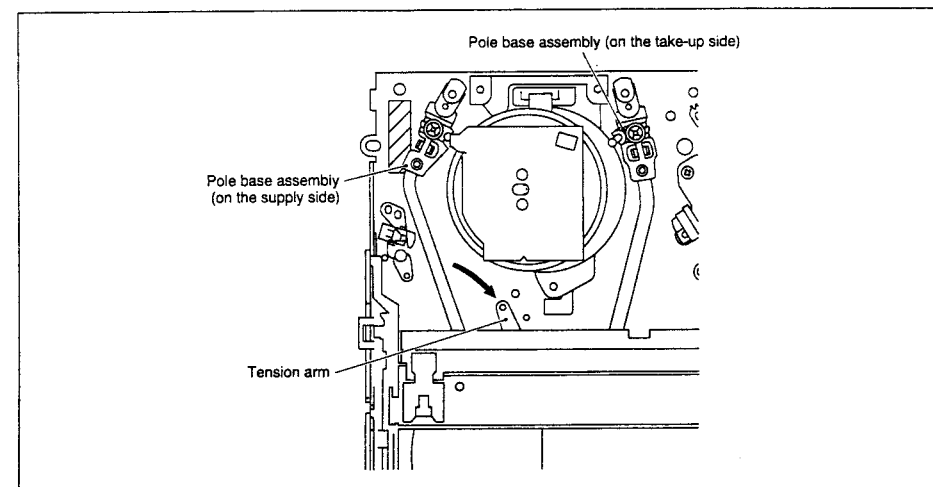


Fig. 2-1-3

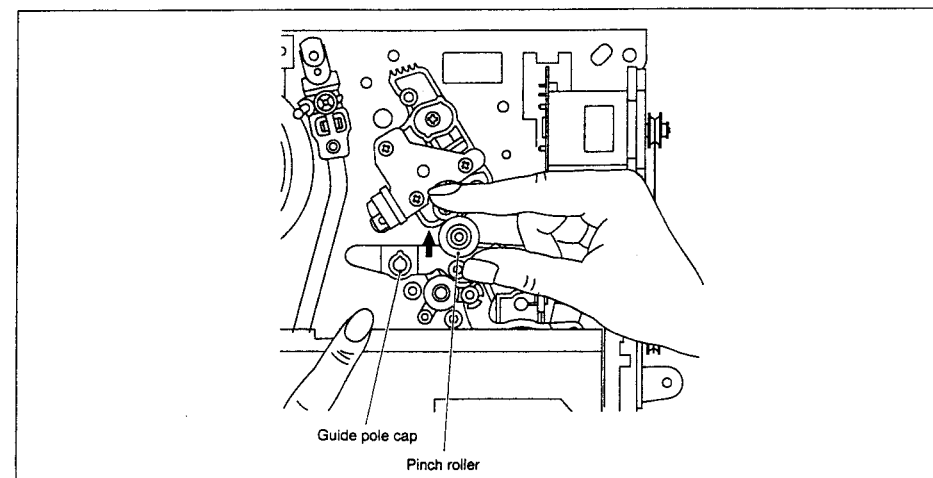


Fig. 2-1-4

2.1.4 Jigs and Tools Required for Adjustment

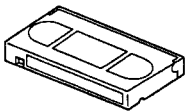
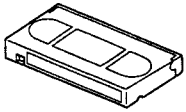
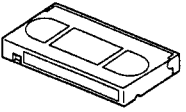
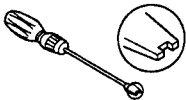
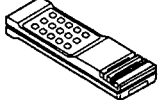
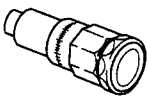
Alignment tape (SP) MHPE	Alignment tape (LP) MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head position bit PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Torque gauge PUJ48075-2	
			

Table 2-1-1 Jigs and tools required for adjustment

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts

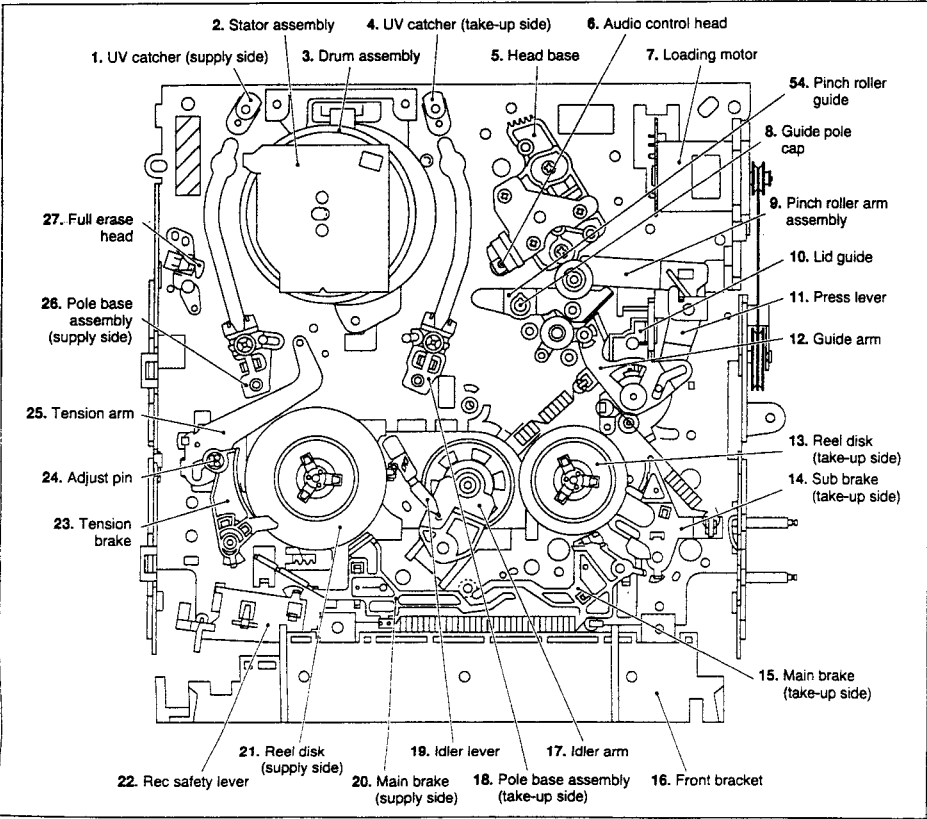


Fig. 2-1-5 Main deck top side

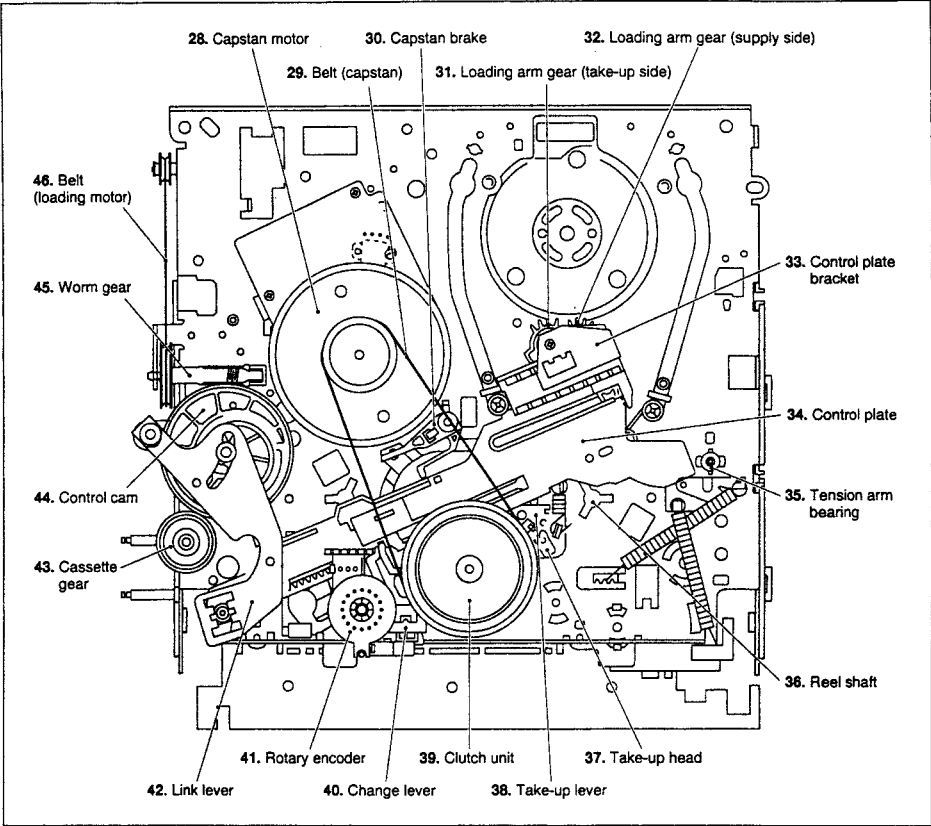


Fig. 2-1-6 Main deck bottom side

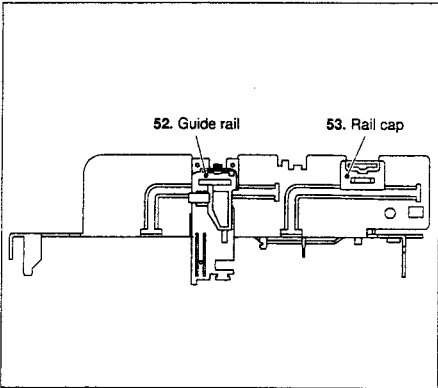


Fig. 2-1-7 Main deck left side

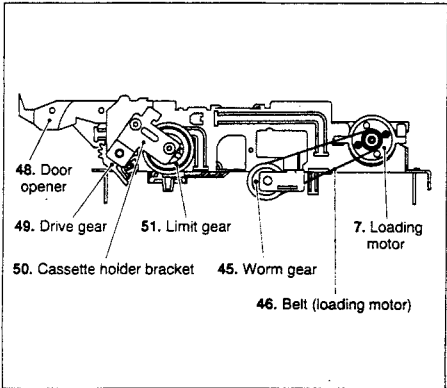


Fig. 2-1-8 Main deck right side

Note: Numerals at the start of the parts names are identical with those of the location diagrams of the major mechanical parts, 1 - 18 of which denote the order of removal. Of the alphabets T and B next to the parts names, T denotes removal from the main deck top side, B from the bottom side and T/B from both sides.

	Removable parts names	Replacement parts names	1 4 12 53 46 9 52 11 50 - - - 49 32 - - 38 25 23 31 16 21 42 41 29 39 40 33 34 14 19 54															
			UV catcher	Guide arm assembly	Rail cap	Belt (loading motor)	Pinch roller arm assembly	Guide rail	Press lever assembly	Cassette holder bracket	Opener guide	Relay gear	Cassette holder assembly	Drive gear	Loading arm gear (supply side)	Drive arm assembly	Tension spring	Take-up lever
17	Idler arm	T		1		2	3	4	5	6	7	8		9	10	11	12	13
15	Main brake (take-up side)	T/B		1		2	3	4	5	6	7	8		9	10	11	12	13
13	Reel disk (take-up side)	T		1		2	3	4	5	6	7	8		9	10	11	12	13
19	Idler lever	T/B		1		2	3	4	5	6	7	8		9	10	11	12	13
-	Rotary encoder guide	T/B		1		2	3	4	5	6	7	8		9	10	11	12	13
14	Sub brake (take-up side)	T/B		1		2	3	4	5	6	7	8		9	10	11	12	13
-	Loading arm gear shaft	B																
35	Tension arm bearing	T		1		2	3	4	5	6								
-	Control plate guide	T/B																
37	Take-up head	B																
31	Loading arm gear (take-up side)	B																
25	Tension arm assembly	T/B		1		2	3	4	5	6								
20	Main brake (supply side)	T/B		1		2	3	4	5	6	7	8						
38	Take-up lever	T/B																
32	Loading arm gear (supply side)	B																
21	Reel disk (supply side)	T		1		2	3	4	5	6	7							
-	Drive arm assembly	T		1		2	3	4	5	6	7							
30	Capstan brake	T/B																
34	Control plate	B																
23	Tension brake assembly	T/B		1		2	3	4	5	6								
-	Cassette holder assembly	T		1		2	3	4	5									
-	Direct gear	B																
10	Lid guide	T		1		2	3											
40	Change lever	B																
49	Drive gear	T					1	2	3									
11	Press lever assembly	T		1		2												
-	Relay gear	T					1	2										
51	Limit gear assembly	T					1	2										
26	Pole base assembly (supply side)	T/B		1														
18	Pole base assembly (take-up side)	T/B		1														
-	Tension spring (Main brake)	T																
22	Rec safety lever	T/B																
28	Capstan motor	T/B																
45	Worm gear	B			1													
44	Control cam	B																
43	Cassette gear	B																
39	Clutch unit	B																
9	Pinch roller arm assembly	T		1														
-	Opener guide	T					1											
8	Guide pole cap	T																
54	Pinch roller guide	T																
1,4	UV catcher	T																
42	Link lever	B																
41	Rotary encoder	B																
12	Guide arm assembly	T																
50	Cassette holder bracket	T																
52	Guide rail	T																
53	Rail cap	T																
7	Loading motor assembly	T																
5	A/C head assembly	T																

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

- (1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note: Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.

- (2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.
- (3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

- (1) See the mechanism assembly and disassembly diagrams (M4) for the lubricating or greasing spots. See Table 2-1-2 for the types of oil or grease to be used.

Type	Name	Serial No.	Symbols on the dis-assembly diagrams
Grease	Maltemp SH-P	KYODO-SH-P	AA
Oil	Cosmohydro HV56	COSMO-HV56	BB

Table 2-1-2 Grease and oil used for the unit

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
Drive	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
	Capstan motor		○
	Capstan brake		○
	Main brake		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
Other	Worm gear assembly		○
	Control plate		○
	Brush assembly	★○	★○
	Tension brake	○	○
	Rotary encoder		○

★: Cleaning

○: Inspection or Replacement if necessary

Table 2-1-3

2.2 REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures. This mode is usually not in use, manually set it when it is required.

2.2.2 How to Set the Mechanism Assembling Mode

Remove the main deck assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY). Turn the worm gear toward the front so that the register hole of the control cam is brought into alignment with the hole at the main deck assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-1)

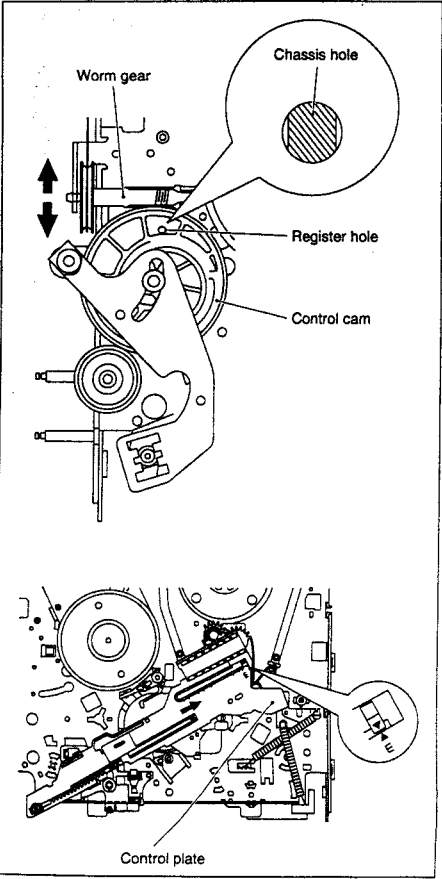


Fig. 2-2-1

2.2.3 Cassette Holder Assembly

1. How to remove

- (1) Remove the guide rail and rail cap. (See Fig.2-2-2).
- (2 lugs on the guide rail and one lug on the rail cap)

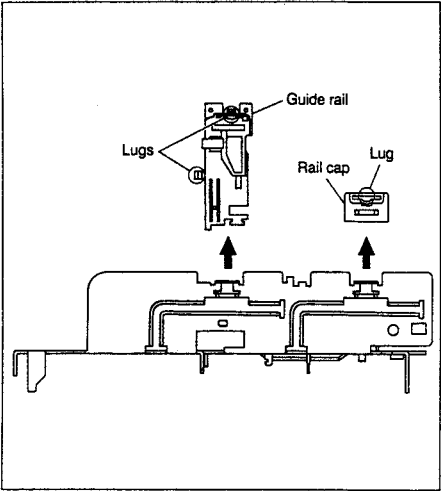


Fig. 2-2-2

- (2) Remove the two slit washers and remove the cassette holder bracket. (See Fig.2-2-3)
- (3) Remove the opener guide, relay gear and limit gear. (See Fig.2-2-3)

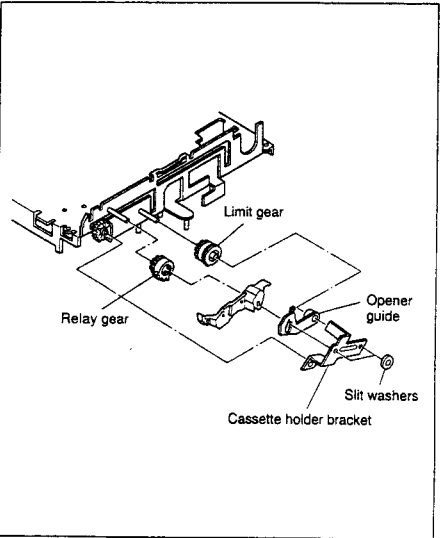


Fig. 2-2-3

- (4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the rail cap have been removed (so that the drive arm is upright). (See Fig.2-2-4)

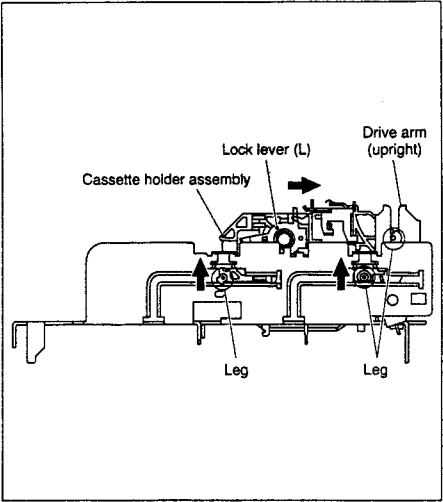


Fig. 2-2-4

- (5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs A and B on the right side out of the rail and also pull up the leg C. (See Fig.2-2-5, Fig.2-2-6)

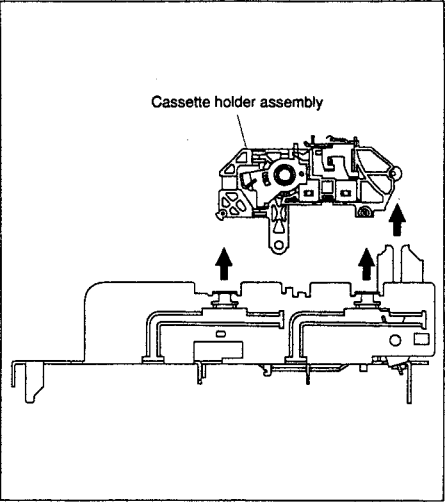


Fig. 2-2-5

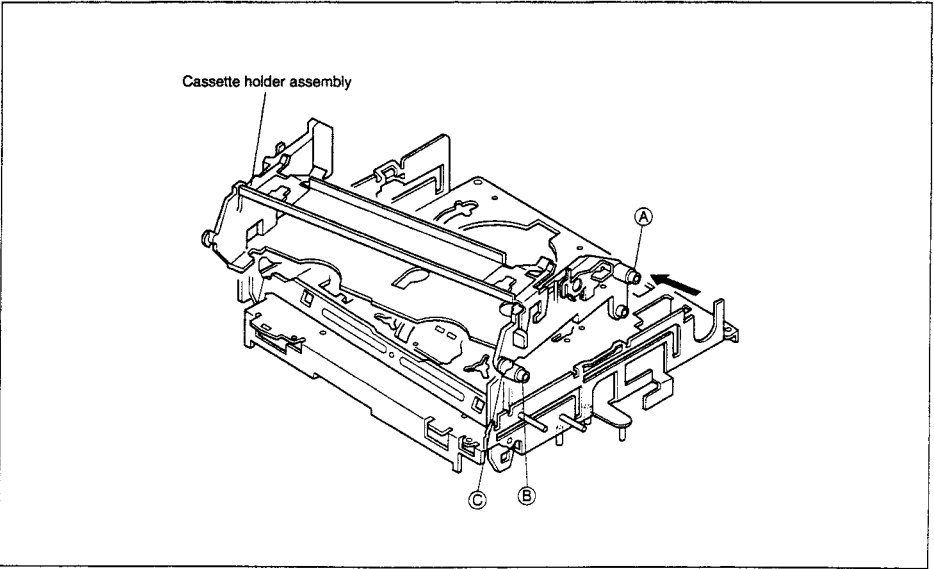


Fig. 2-2-6

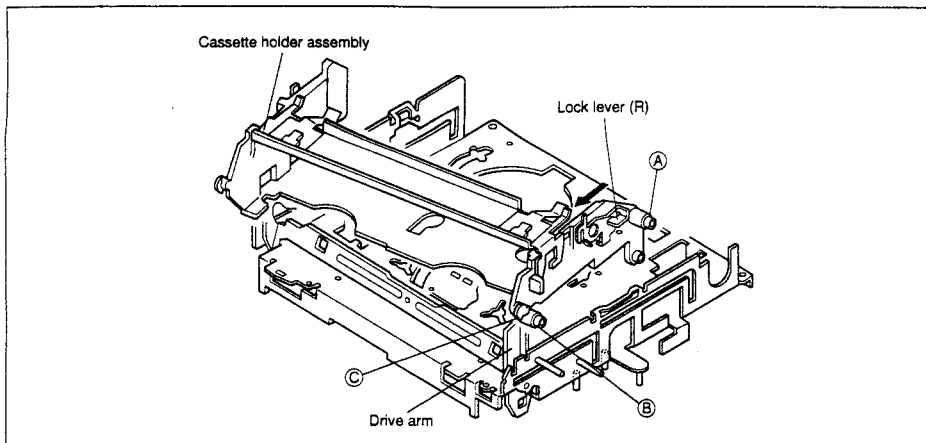


Fig. 2-2-7

2. How to install

- (1) Hold the drive arm upright and fit the leg ③ on the right side of the cassette holder assembly into the groove. (See Fig.2-2-7)
- (2) While swinging the lock lever (R) of the cassette holder assembly toward front, put the legs ① and ② into the rail. (See Fig.2-2-7)
- (3) Drop the three legs on the left side of the cassette holder into the groove at one time. (See Fig.2-2-8)
- (4) Slide the whole cassette holder toward the front to bring it to the eject end position.
- (5) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the register hole on the main deck. (See Fig.2-2-9)
- (6) Install the relay gear so that the notch on the outer circumference of the relay gear is brought into alignment with the notch on the main deck. It is important at this stage that the register hole at the limit gear, the register hole at the relay gear and the register hole at the drive gear are all in alignment. (See Fig.2-2-9).
- (7) Install the door stopper, opener guide and cassette holder bracket and fasten the two slit washers.

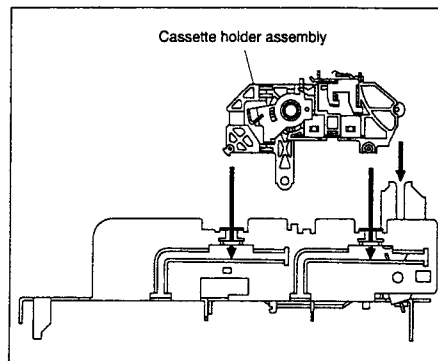


Fig. 2-2-8

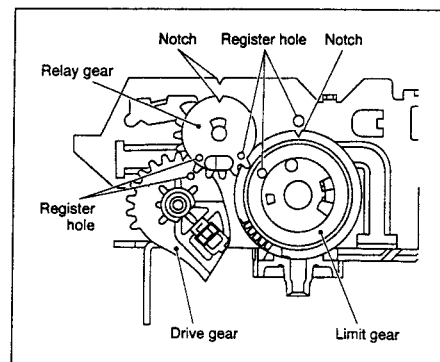


Fig. 2-2-9

2.2.4 Pinch Roller Arm Assembly

1. How to remove

- (1) Remove the spring from the hook of the press lever.
- (2) Remove the slit washer and remove the pinch roller seat. (See Fig.2-2-10)
- (3) Remove the pinch roller arm assembly by pulling it up.

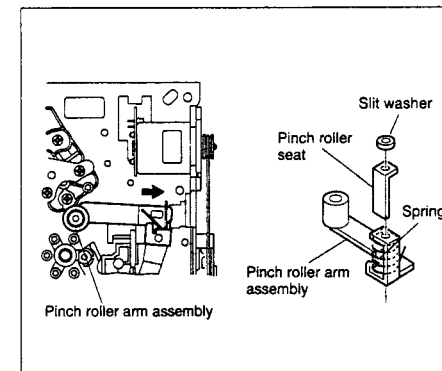


Fig. 2-2-10

2.2.5 Guide Arm and Press Lever

1. How to remove

- (1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm by pulling it up.
- (2) Remove the press lever by pulling it up. (See Fig.2-2-11)

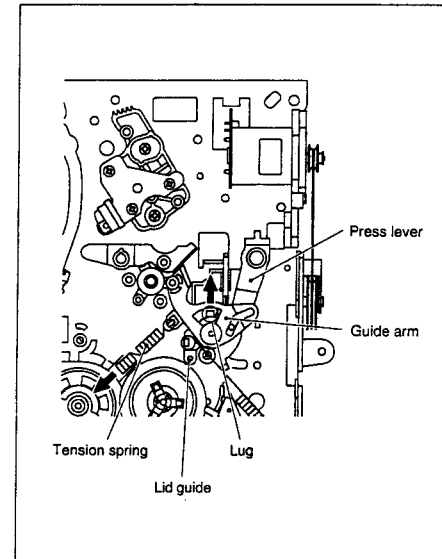


Fig. 2-2-11

2.2.6 Audio Control Head

1. How to remove

- (1) Remove two screws (A) and remove the audio control head together with the head base.

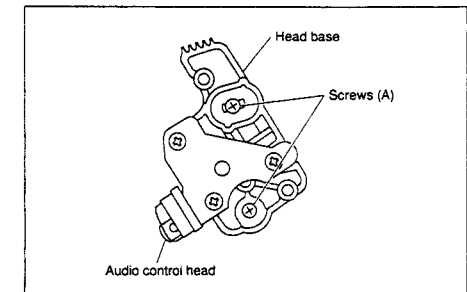


Fig. 2-2-12

- (2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

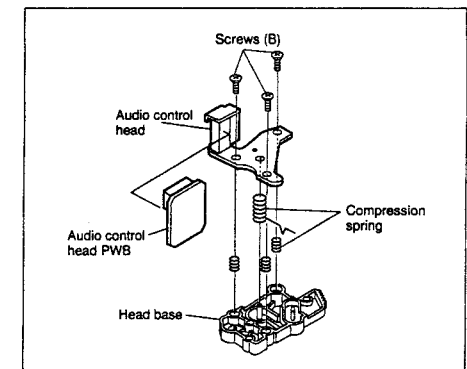


Fig. 2-2-13

2. How to install

- (1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-14. Also make sure that the screw center is brought into alignment with the center position of the slot.

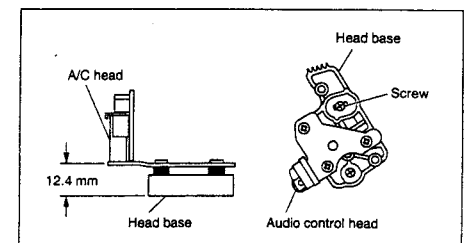


Fig. 2-2-14

2.2.7 Loading Motor

1. How to remove

- (1) Remove the belt wound around the worm gear.
- (2) Open the two lugs of the motor guide and remove the loading motor, loading motor PWB and motor guide altogether by pulling them up.
- (3) When replacing the motor base, take care with the orientation of the motor (so that the label faces upward).
- (4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig.2-2-15.

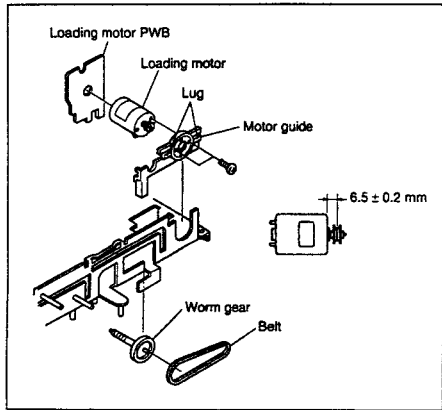


Fig. 2-2-15

2.2.8 Capstan Motor

1. How to remove

- (1) Remove the belt (capstan) on the main deck back side.
- (2) Remove one screw (A) and remove the pinch roller guide.
- (3) Remove two screws (B) and remove the capstan motor.

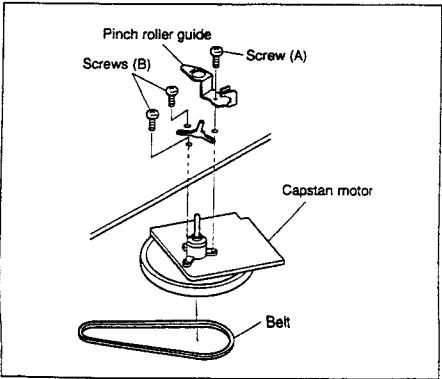


Fig. 2-2-16

2. How to install

Please refer to page 2-25.

2.2.9 Pole Base (on the supply or take-up side)

1. How to remove

- (1) Remove the UV catcher on the removal side by loosening one screw (A).
- (2) Remove the pole base on the supply side from the main deck by loosening one screw (B) on the main deck back side and sliding the pole base toward the UV catcher.
- (3) As for the pole base on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate (See the "Procedures for Lowering the Cassette holder assembly" on page 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD). Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing one screw (B).

NOTE: After reinstalling the Pole base and the UV catcher, be sure to perform compatibility adjustment.

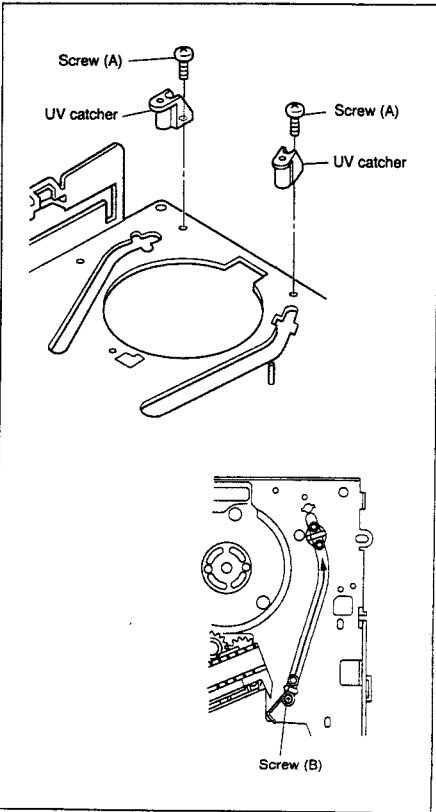


Fig. 2-2-17

2.2.10 Rotary Encoder

- (1) Remove one screw (A) and remove the rotary encoder by pulling it up.
- (2) When installing the rotary encoder, bring the register marks into alignment as indicated in Fig.2-2-18.

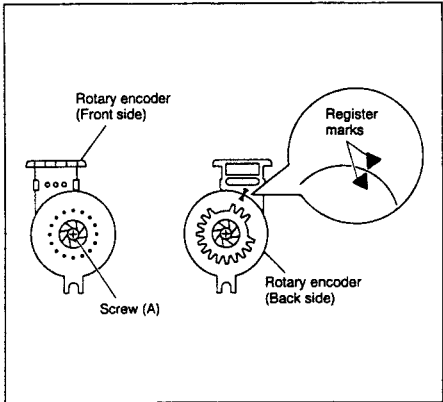


Fig. 2-2-18

2.2.11 Clutch Unit

- (1) Remove the belt wound around the capstan motor and the clutch unit.
- (2) Remove the slit washer and remove the clutch unit.

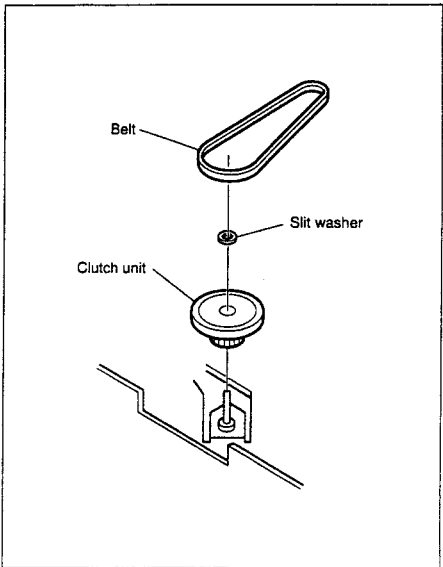


Fig. 2-2-19

2.2.12 Change Lever and Direct Gear

- (1) Release two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever.
- (2) Remove the slit washer retaining the direct gear and remove the latter. Take care of the two washers and one spring on and under the direct gear. (See Fig.2-2-20)

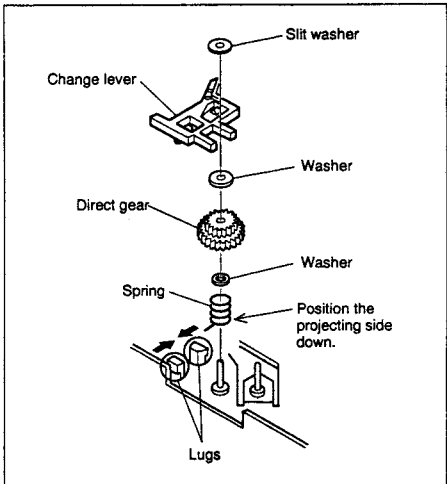


Fig. 2-2-20

2.2.13 Link Lever

- (1) Remove the two slit washers.
- (2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the lock member of the control plate.

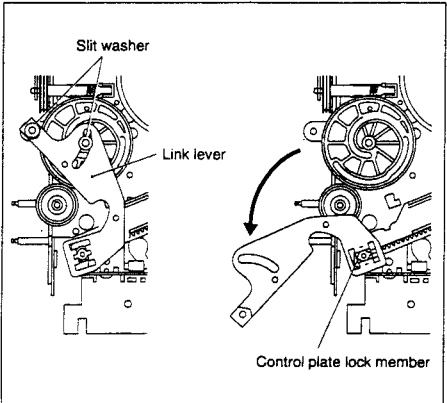


Fig. 2-2-21

2.2.14 Cassette Gear, Control Cam and Worm Gear

- (1) Remove the control cam by lifting it.
- (2) Open the two lugs of the cassette gear outward and pull the latter off.
- (3) Remove the belt wound around the worm gear and the loading motor.
- (4) Open the lug of the lid guide outward and remove the worm gear.
- (5) When installing the control cam, make sure that the register hole at the control cam is in alignment with the register hole of the main deck. (See Fig.2-2-22)

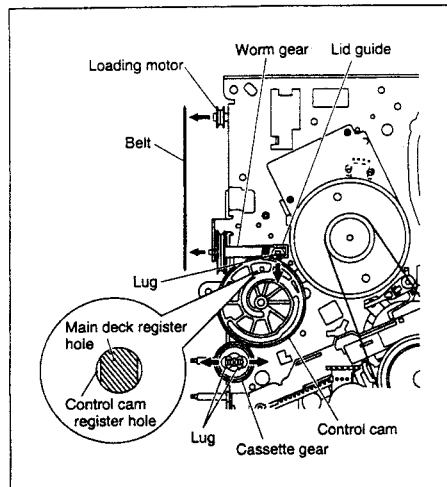


Fig. 2-2-22

2.2.15 Control Plate

1. How to remove

- (1) Remove one screw (A) retaining the control plate bracket and remove the latter.
- (2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-23)

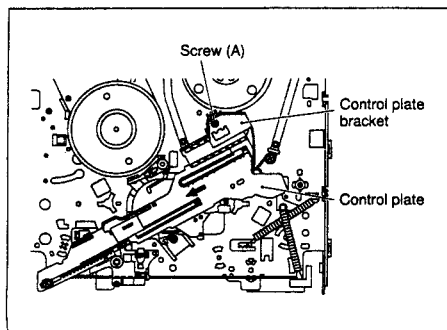


Fig. 2-2-23

2. How to install

- (1) Adjust the position of the idler arm pin as indicated in Fig.2-2-24. (to the left of center of the R section)
- (2) Bring the positioning hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.
- (3) Press-fit the pole base (on the supply side) as indicated by the arrow and install the control plate so that section A of the loading arm gear shaft fits into hole (A) of the control plate, section B of the control plate guide into hole (B), and the control plate comes under section C of the rotary encoder guide and section D of the loading arm (on the take-up side). Then slide the whole control plate in the arrow-indicated direction. (See Fig.2-2-25).
- (4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-25)
- (5) Pull off the hexagonal wrench for positioning.

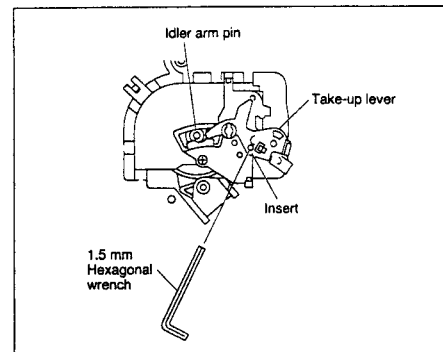


Fig. 2-2-24

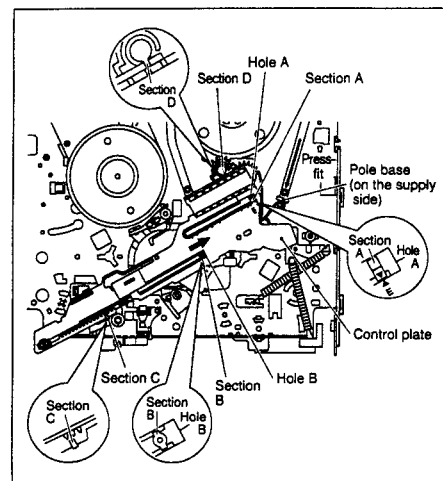


Fig. 2-2-25

2.2.16 Loading Arm (on the supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

- (1) Remove the loading arm (on the supply side) by loosening screw (A) in Fig.2-2-26.
- (2) Remove screw (B) in Fig.2-2-26 and slide the pole base in the loading direction with the spring held on the pole base (on the take-up side). (See Fig.2-2-26)
- (3) Pull the spring out of the pole base. Turn the loading arm clockwise through about 45 degrees so that the notch of the loading arm is in alignment with the projection of the loading arm gear shaft and lift it. Likewise, turn the loading arm counterclockwise through 180 degrees so that the notch is in alignment with the projection and remove the loading arm (on the take-up side). (See Fig.2-2-27)
- (4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove one screw (C) and remove the loading arm gear shaft by sliding it in the arrow-indicated direction.

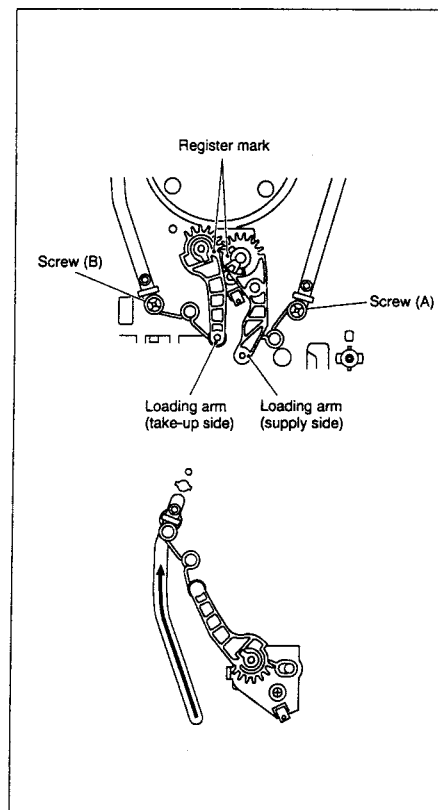


Fig. 2-2-26

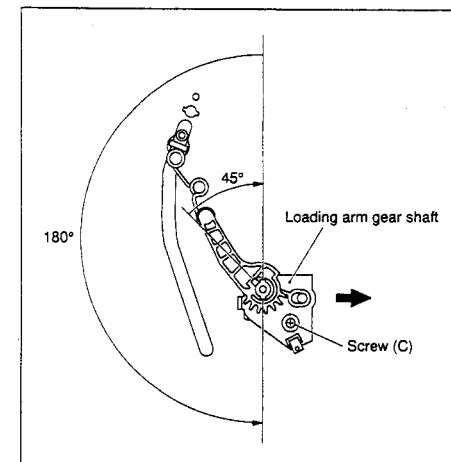


Fig. 2-2-27

2. How to install

- (1) Install the loading arm (on the take-up side) as indicated in Fig.2-2-28 and turn it clockwise through 180 degrees so that the loading arm reaches the bottom of the loading arm gear shaft.
- (2) Then turn the loading arm (on the take-up side) counterclockwise through 180 degrees. Hang the spring on the pole base and tighten the screw.
- (3) Install the loading arm (on the supply side) so that the register mark of the loading arm (on the take-up side) is in alignment with the register mark of the loading arm (on the supply side). Then hang the spring on the pole base and tighten the screw. (See Fig.2-2-26).

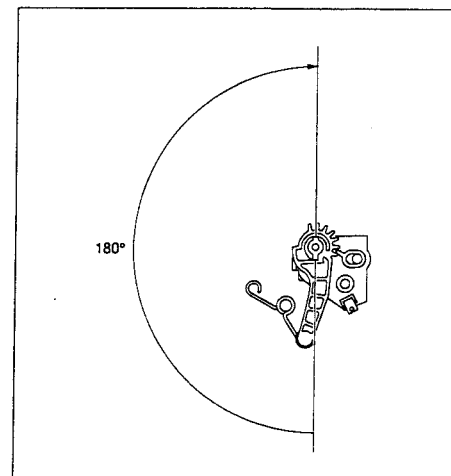


Fig. 2-2-28

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

- (1) Remove the spring of the take-up lever from the main deck.
- (2) Remove one lug of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.
- (3) Remove one screw (A).
- (4) Remove two lugs of the control plate guide from the main deck. Locate the idler arm pin in the center of the R section of the control plate and remove the latter.

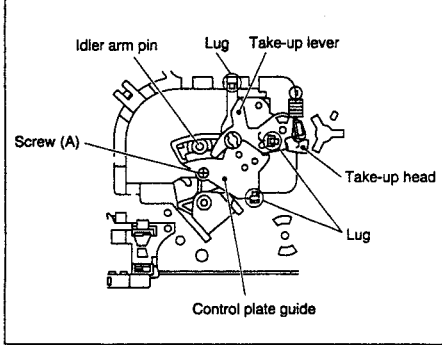


Fig. 2-2-29

2.2.18 Capstan Brake

- (1) Move lug A of the capstan brake in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-30)
- (2) Remove lug B of the capstan brake from the main deck and remove the capstan brake.

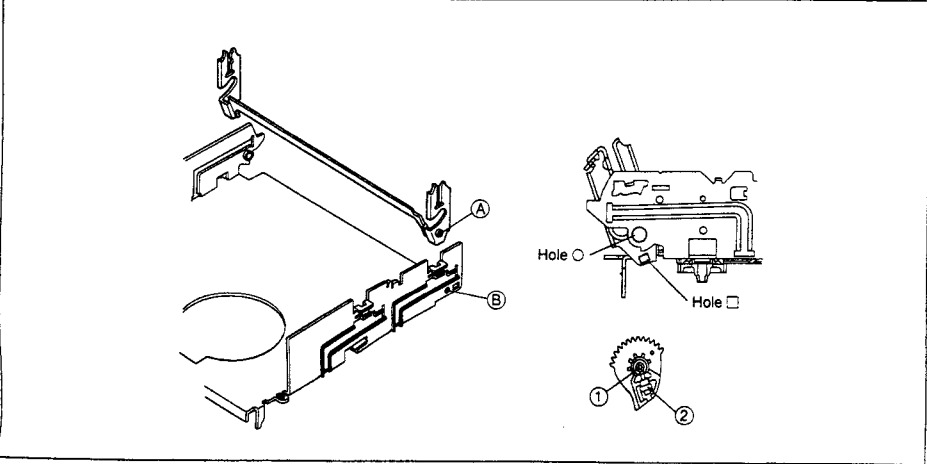


Fig. 2-2-31

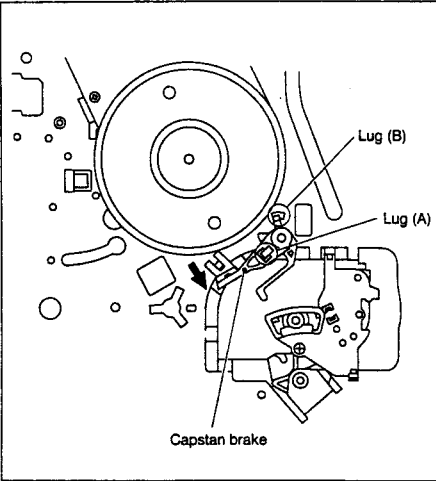


Fig. 2-2-30

2.2.19 Drive Gear and Drive Arm

1. How to remove

- (1) Remove the cassette holder assembly. (See 2.2.3 How to remove the cassette holder assembly)
- (2) Pull out the drive gear and remove the drive arm.

2. How to install

- (1) Insert section A of the drive arm into section B of the main deck.
- (2) Insert section ① of drive gear into hole O of the drive arm and section ② into hole □. (See Fig. 2-2-31)

2.2.20 Sub Brake (on the take-up side)

- (1) Remove the spring attached to the lid guide and sub brake.
- (2) Bring lug A of the sub brake into alignment with the notch of the main deck.
- (3) Remove lugs B and C of the sub brake from the main deck and remove the sub brake.

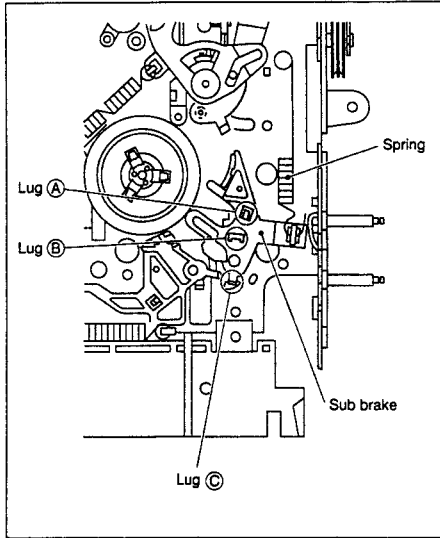


Fig. 2-2-32

2.2.21 Main Brake (on the take-up side), Reel Disk (on the take-up side) and Main Brake (on the supply side)

- (1) Move the main brake (on the take-up side) in the arrow-indicated direction and remove the reel disk (on the take-up side).
- (2) Remove the spring attached to the main brake.
- (3) Remove lug A of the main brake (on the take-up side) and pull out lug B after bringing it into alignment with the main deck notch.
- (4) Remove lugs C and D of the main brake (on the supply side) from the main deck and pull them off. (See Fig. 2-2-33)

Note: If the main brake is difficult to remove, press it and hold the adjustment pin from the back side of the main deck when attempting to remove it. After the adjustment pin has been removed or the main brake or the reel disk on the supply or take-up side have been replaced, it is required to adjust the main brake torque. See page 2-24 for the detailed adjustment procedures.

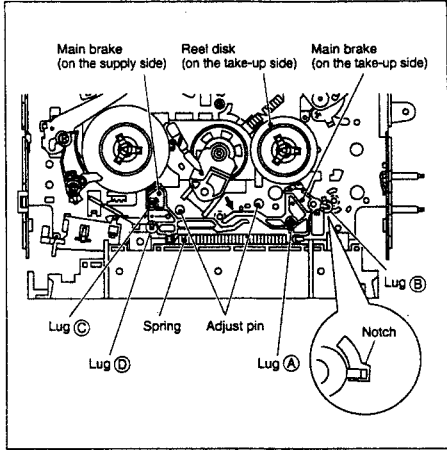


Fig. 2-2-33

2.2.22 Tension Brake, Reel Disk (on the supply side) and Tension Arm

- (1) Remove the three lugs of the tension brake from the main deck and pull them off.
- (2) Remove the reel disk (on the supply side) by loosening in the arrow-indicated direction the main brake (on the supply side).
- (3) Remove the tension spring on the main deck back side and remove the lugs of the tension arm bearing to pull up and remove the tension arm. (See Fig. 2-2-34)

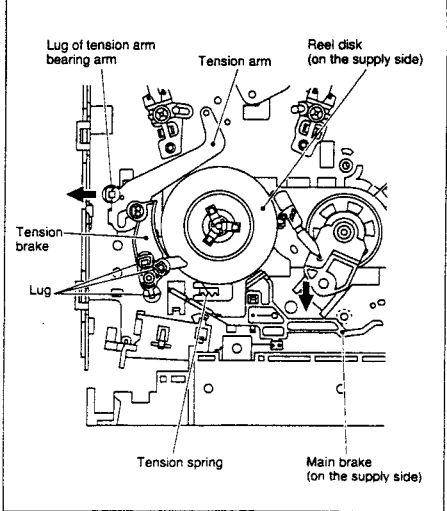


Fig. 2-2-34

2.2.23 Idler Lever, Idler Arm and Reel Shaft

- (1) Remove one lug of the idler lever from the main deck and remove the hook fitted in the idler arm hole by lifting it.
- (2) Remove the slit washer and pull out the idler arm.
- (3) Turn the reel shaft counterclockwise through 60 degrees and remove it. (See Fig.2-2-35)

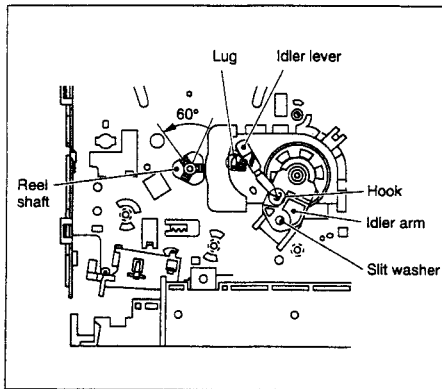


Fig. 2-2-35

2.2.24 Stator Assembly

- (1) Remove two screws (A).
- (2) Remove the stator assembly by lifting in the arrow-indicated direction (Take care that the brush spring does not jump out).
- (3) Remove the flat cable.
- (4) After installation, be sure to perform the 3.2.1 PB switching point adjustment according to the electrical adjustment procedure.

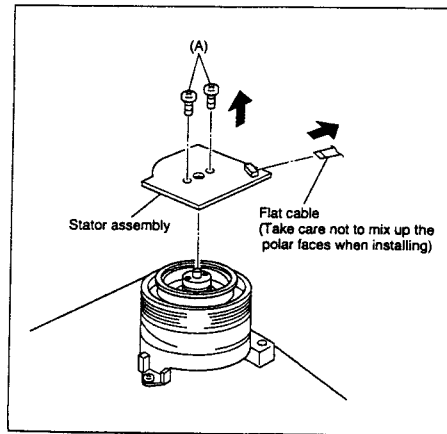


Fig. 2-2-36

2.2.25 Rotor Assembly

- (1) Remove the stator assembly.
- (2) Remove the two screws (B) and remove the rotor assembly.

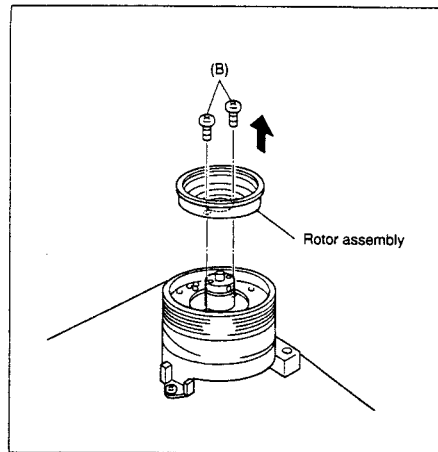


Fig. 2-2-37

Note: When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.

- (3) Match the phases of the upper drum and the rotor assembly as indicated in Fig.2-2-38.
- (4) Place the upper drum hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-38)

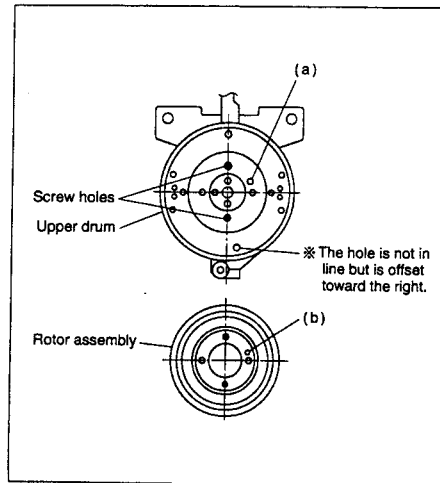


Fig. 2-2-38

2.2.26 Upper Drum Assembly

1. How to remove

- (1) Remove the stator assembly and rotor assembly. (See Fig. 2-2-36 and 2-2-37)
- (2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench and remove the collar assembly. Also remove the brush, spring and cap at one time.
- (3) Remove the upper drum assembly and remove the washer using tweezers.

Note: When replacement is required, control the up-down movement of the brush. Never apply grease.

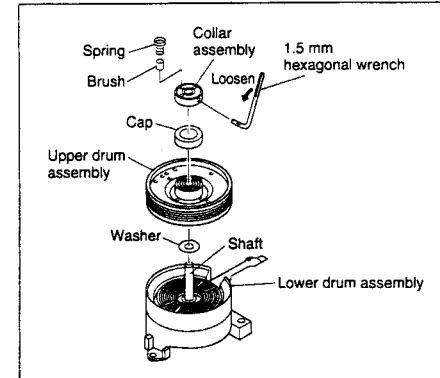


Fig. 2-2-39 Upper drum assembly-1

2. How to install

- (1) Clean coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig.2-2-40).
- (2) Install a new washer and upper drum assembly on the drum shaft. (See Fig.2-2-39)

Note: When replacing the upper drum assembly, replace it together with the washer.

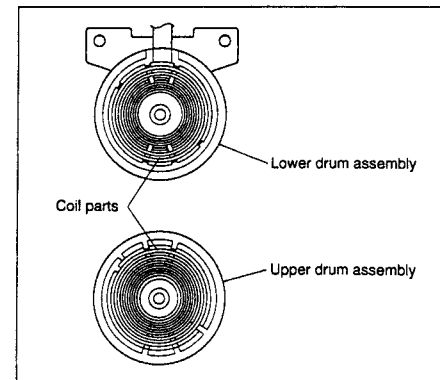


Fig. 2-2-40

- (3) Position the collar assembly as indicated in Fig.2-2-41 while controlling its up-down movement.

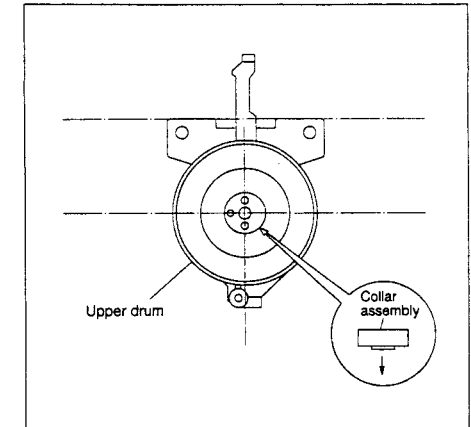


Fig. 2-2-41

- (4) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.

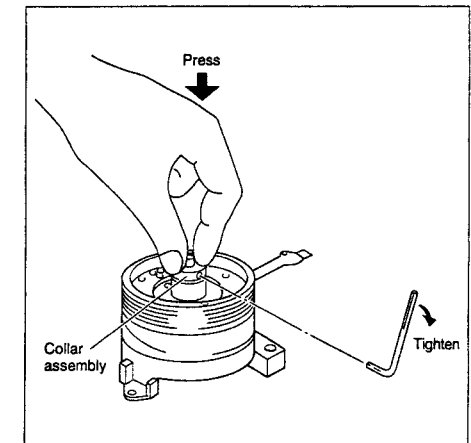


Fig. 2-2-42

- (5) After installation, gently turn the upper drum with your hand to make sure that it turns normally.
- (6) Install the rotor assembly and stator assembly according to Fig. 2-2-36 and 2-2-38.
- (7) When installation is complete, clean the upper drum assembly and lower the drum assembly and carry out the following adjustments.
 - PB switching point adjustment
 - Slow tracking adjustment
 - Compatibility adjustment (Be sure to check for compatibility for the EP mode.)

2.3 MAJOR PARTS INSTALLATION (PHASE MATCHING BETWEEN MECHANICAL PARTS)

2.3.1 Before Assembly of the Parts

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits. Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm assembly, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions. Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another. Perform the installation of major parts (including phase matching) in the mechanism assembling mode as in the previous section.

2.3.2 Loading Arm Assembly (on the Supply or Take-up Side)

- (1) Return the pole base assembly to the foremost position in the unloading direction.
 - (2) Install the loading arm assembly so that the register mark on the gear of the supply side loading arm is in alignment with the one on the take-up side loading arm as indicated in Fig. 2-3-1.
- See 2.2.16 "2. How to install" of the foregoing section for details of installation.

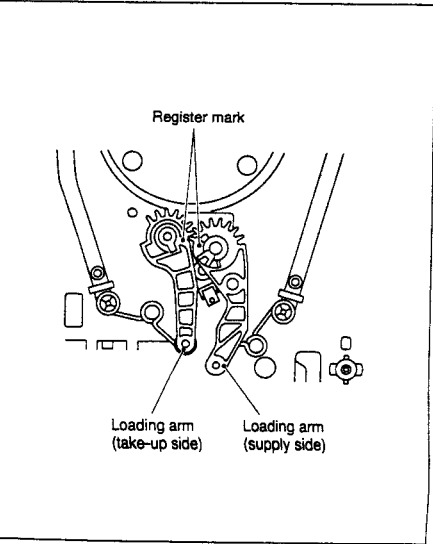


Fig. 2-3-1

2.3.3 Control Plate

- (1) With register marks on the both loading arm assemblies in alignment, install the control plate so that the mark ▼ on the loading arm gear shaft is in alignment with mark E of the control plate. (See Fig.2-3-2)
- See 2.2.15 "2. How to install" of the foregoing section for details of installation.

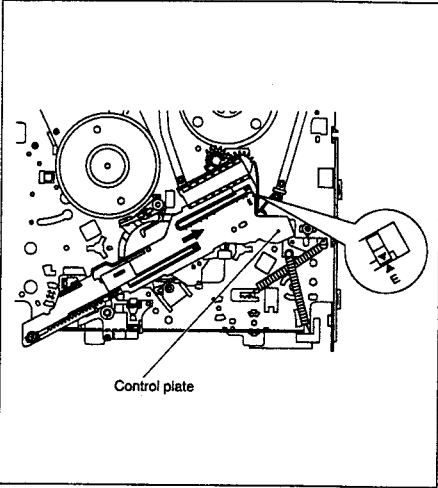


Fig. 2-3-2

2.3.4 Rotary Encoder

- (1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the register marks on the rotary encoder into alignment as indicated in Fig.2-3-3.
- (2) Turn over the rotary encoder with its register marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.
- (3) Tighten the screw (A) to complete the installation.

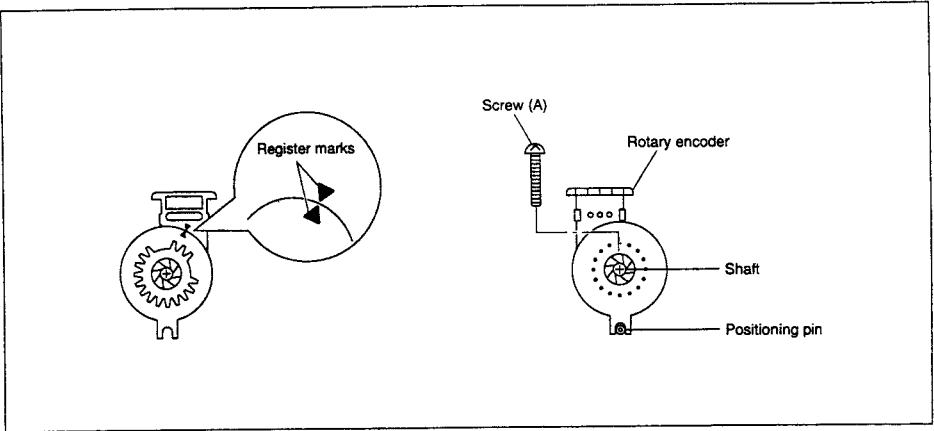


Fig. 2-3-3

2.3.5 Control Cam, Cassette Gear and Link Lever

- (1) Install the control cam as indicated in Fig.2-3-4 making sure of the front and back side alignment. Note here that the register hole of the control cam is in alignment with and allows passage through the register hole of the main deck.
- (2) Install the cassette gear by pushing it until it is locked with a clicking sound. (See Fig.2-3-4)
- (3) Insert section (A) of the link lever into section (B) of the control plate as shown in Fig.2-3-5.

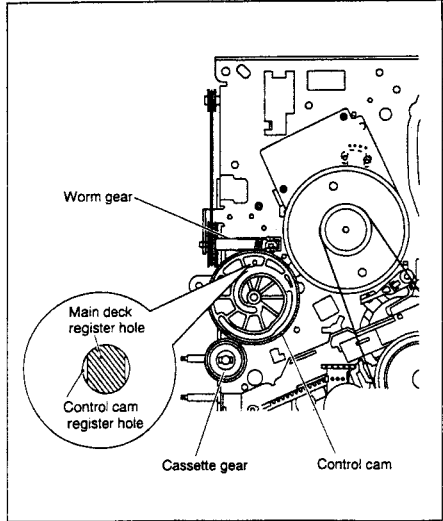


Fig. 2-3-4

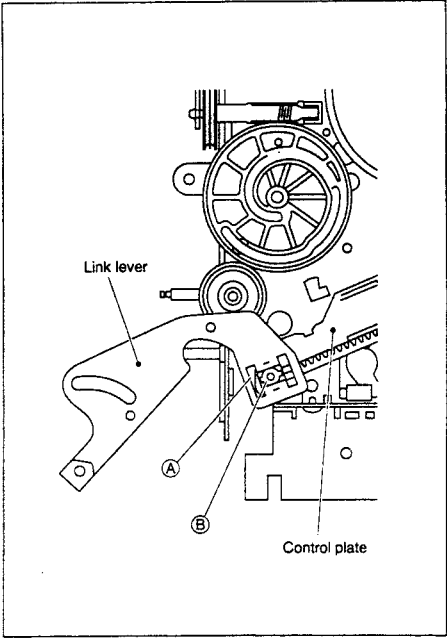


Fig. 2-3-5

- (4) Turn the link lever clockwise and mount it on the control cam center shaft (A) and the control cam left-side shaft (B). (See Fig.2-3-6).
- (5) Fasten the slit washers at two points (A) and (B).

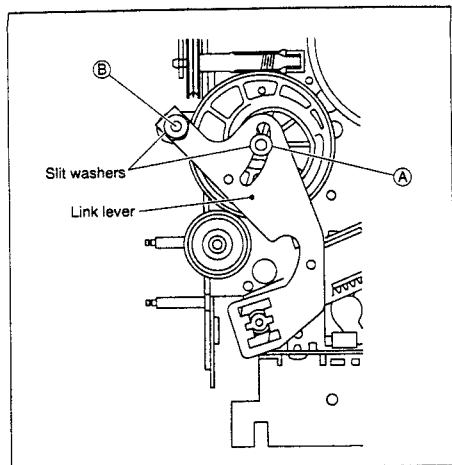


Fig. 2-3-6

2.3.6 Relay Gear, Limit Gear and Drive Gear

- (1) Install the limit gear so that the notch at its outer circumference is in alignment with the register hole of the main deck. (See Fig.2-3-7)
- (2) Install so that the notch at the outer circumference of the relay gear is in alignment with the notch of the main deck, and at the same time, that the hole A of the relay gear is in alignment with hole A of the limit gear and hole B of the relay gear with hole B of the drive gear. (See Fig.2-3-7)

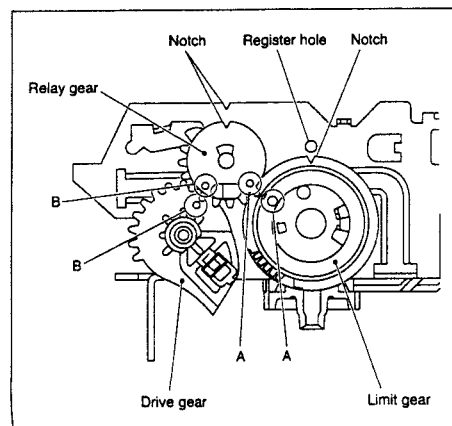


Fig. 2-3-7

2.4 COMPATIBILITY ADJUSTMENT

- Notes:**
- Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.
 - To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.

2.4.1 Checking/Adjustment of FM Waveform Linearity

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.F.F) of the main board assembly for external sync connection.
- (2) Playing the alignment tape MHPE, observe the FM waveform.
- (3) Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)
- (4) Make sure that there is no significant level drop of the FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (Fig.2-4-1)
- (5) Slightly loosen the set screw under the pole base assembly with a 1.25 mm hexagonal wrench (Take care not to loosen too much). (Fig.2-4-2)
- (6) Reduce the FM waveform while pressing the channel buttons (+, -) during playback. If a drop in level is found on the left side as shown in Fig.2-4-3, turn the guide roller of the pole base assembly (supply side) with the roller driver (PTU94002) to make the FM waveform linear. If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the guide roller to make it linear. (Fig.2-4-3)
- (7) Then play MHPE-L and make sure that the FM waveform varies in parallel and linearly with the tracking operation. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
- (8) After adjustment, tighten the set screw under the pole base assembly. (Take care not to tighten too much)
- (9) After tightening the set screw, play the alignment tape MHPE and MHPE-L again to make sure that the FM waveform has correct variation.

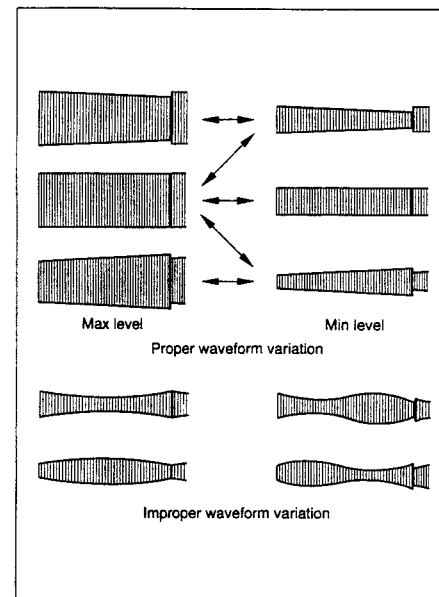


Fig. 2-4-1

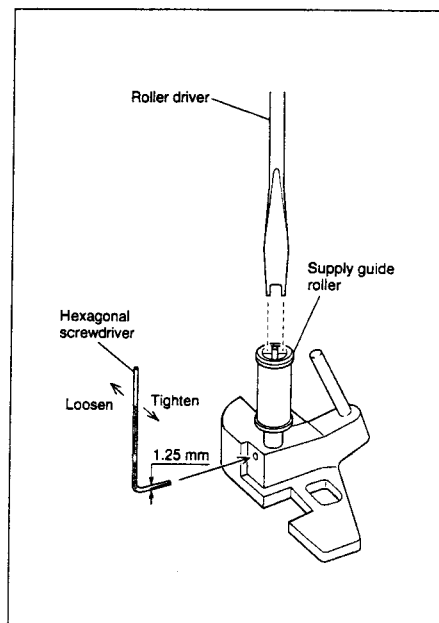


Fig. 2-4-2

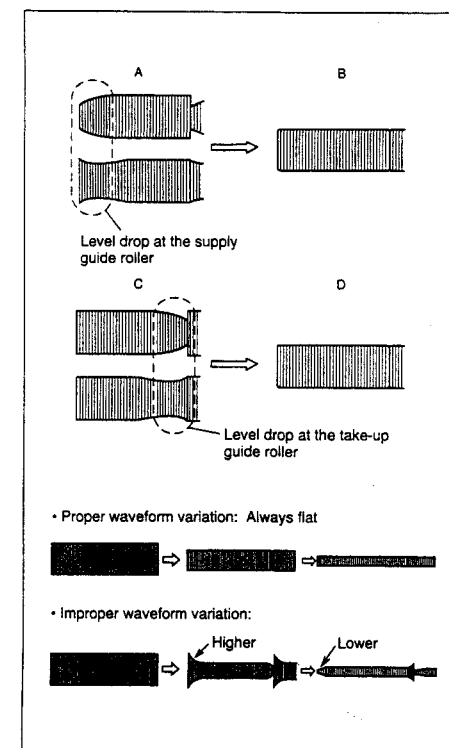


Fig. 2-4-3

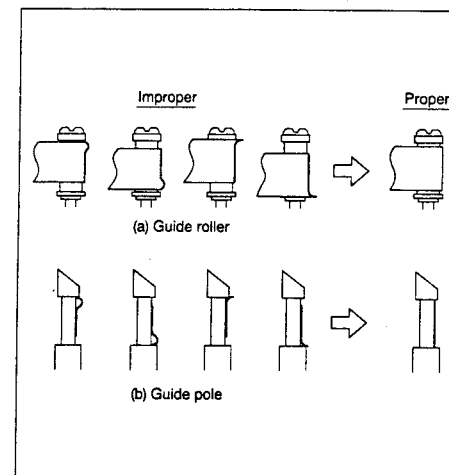


Fig. 2-4-4

2.4.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note: Set a temporary level of the height of the A/C head in advance to make the adjustment easier. (See Fig.2-2-14)

- (1) Connect CH-1 of the oscilloscope to AUDIO OUT and CH-2 to TP4001 (CTL P) of the main board and observe the waveforms on both channels in the ALT mode.
- (2) Play the alignment tape MHPE and adjust it by turning screws (1), (2) and (3) little by little until the waveform of both the audio output signal and the control pulse reach maximum. Screw (1) and screw (3) are for adjustment of tilt and screw (2) for azimuth.

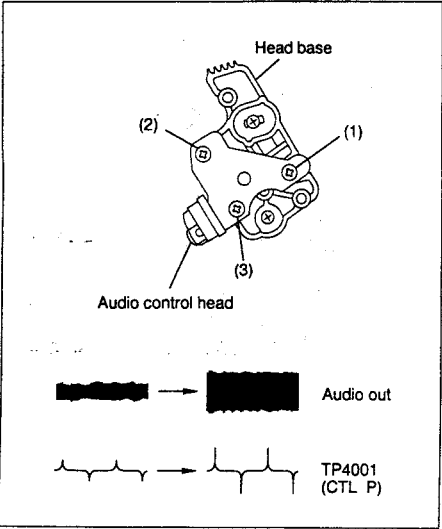


Fig. 2-4-5

2.4.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Play the alignment tape MHPE and observe the FM waveforms.
- (3) Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)
- (4) Loosen screws (4) and (5) so that the A/C head position bit (PTU94010) is set as indicated in Fig.2-4-6.
- (5) Turn the A/C head position and first move the audio control head fully up to the capstan head. Then gradually return the audio control head toward the drum and stop it where the FM waveform reaches its maximum for the first time. Then tighten screw (4) temporarily.

- (6) Then play the alignment tape MHPE-L.
- (7) Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode (This also brings the tracking to the center.)
- (8) Perform the tracking operation and make sure that the FM waveform is at its maximum.
- (9) If it is not at maximum, loosen the temporarily tightened screw (4) and turn the A/C head position bit to bring the audio control head to a position, around where the waveform reaches its maximum for the first time. Then tighten screws (4) and (5).

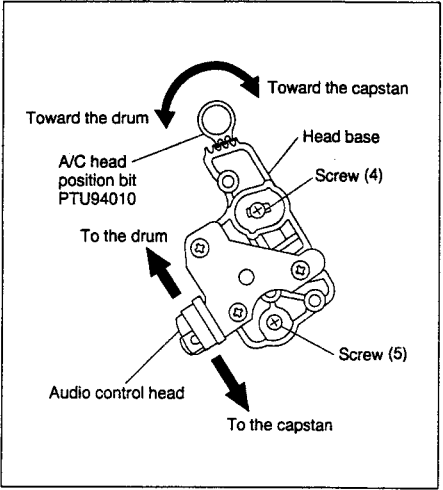


Fig. 2-4-6

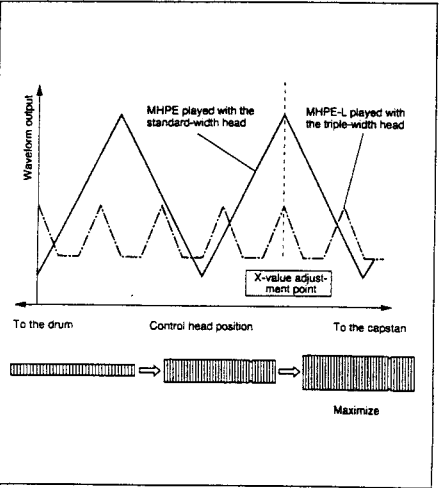


Fig. 2-4-7

2.4.4 LP mode Auto Tracking Preset

Note: Set the remote control cable of the video recorder to A mode. (The unit set in B mode does not accept the remote control cable of the presetting unit.)

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Playing the alignment tape MHPE and observing the FM waveform, make sure that the auto tracking operation is complete.
- (3) Press the button "D" of the presetting unit twice.
- (4) Make sure that the MHPE-L is not ejected.
- (5) If ejected, again perform the phase (X-value) adjustment of the audio control head.

2.4.5 Checking/Adjustment of the Tension Pole

- (1) Check the back tension cassette gauge (PUJ48076-2) to make sure that the indicator points to 29 - 46 g-cm.
- (2) If the indicated value is outside this range, carry out the following adjustment steps.
 - 1) Select the mechanism servicing mode. (See 1.5 MECHANISM SERVICE MODE)
 - 2) While in the Play mode, turn the adjustment pin with a straight-slot screwdriver while taking care not to touch the 2.5 mm dia. pole. (See Fig.2-4-8).

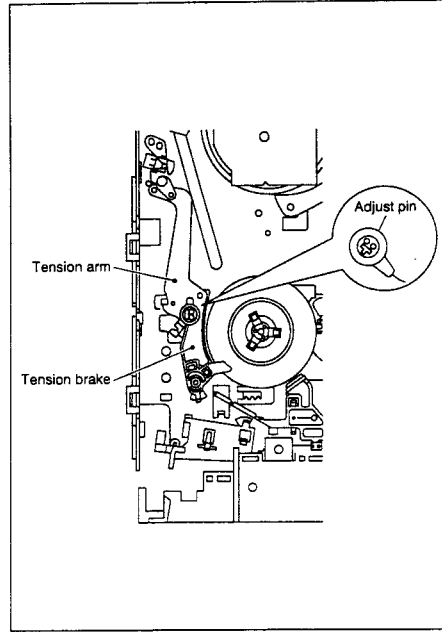


Fig. 2-4-8

2.4.6 Adjustment of the Tension Stud

- (1) Adjust so that the left side of the tension stud is on the extension of the notch line of the main deck as indicated in Fig.2-4-9.

Note: Adjustment is not usually necessary for the tension stud. Perform this adjustment only when it is out of position.

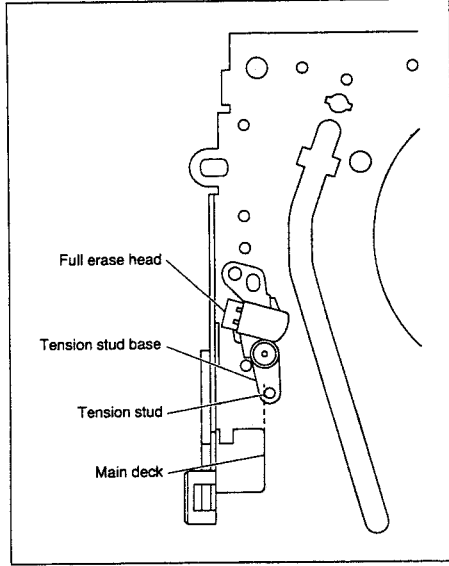


Fig. 2-4-9

2.4.7 Main Brake Torque Adjustment

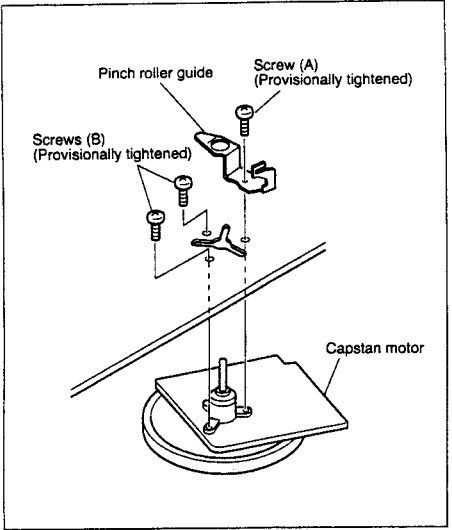
Note: Adjustment of the main brake torque is required after the adjustment pin has been removed or the main brake or the reel base on the supply or take-up side have been replaced, removed or attached.

- (1) Rotate the pulley of the loading motor by hand to align the mark ▼ on the loading arm gear shaft with the ST marking on the control plate (i.e. set to the STOP mode position).
- (2) Insert a torque gauge (PUJ48075-2) into the reel base on the side to be played, hold the torque gauge lightly, rotate it clockwise when measuring the supply side torque or counterclockwise when measuring the take-up side torque, and read the value indicated at the moment the reel base starts to slip.
- (3) Make sure that the main brake torque values on the supply and take-up sides are both between 39.2 — 78.4 x 10⁻³ N-m (400 — 800 gf-cm). If the value is outside the specified range, adjust to the specified value by rotating the adjustment pin. If an adjustment by using the adjustment pin is not possible, replace the main brake.

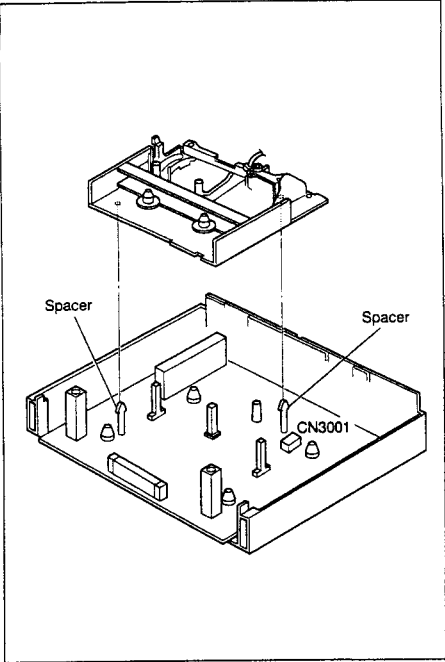
How to Mount the Capstan Motor
(Centering the Mounting Position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over - load. Install the capstan motor while following the procedure given below.
(The capstan motor is centrally located when the unit is shipped from the factory.)

1. Provisionally tighten one screw (A) together the pinch roller guide and the two screws (B) securing the capstan motor.



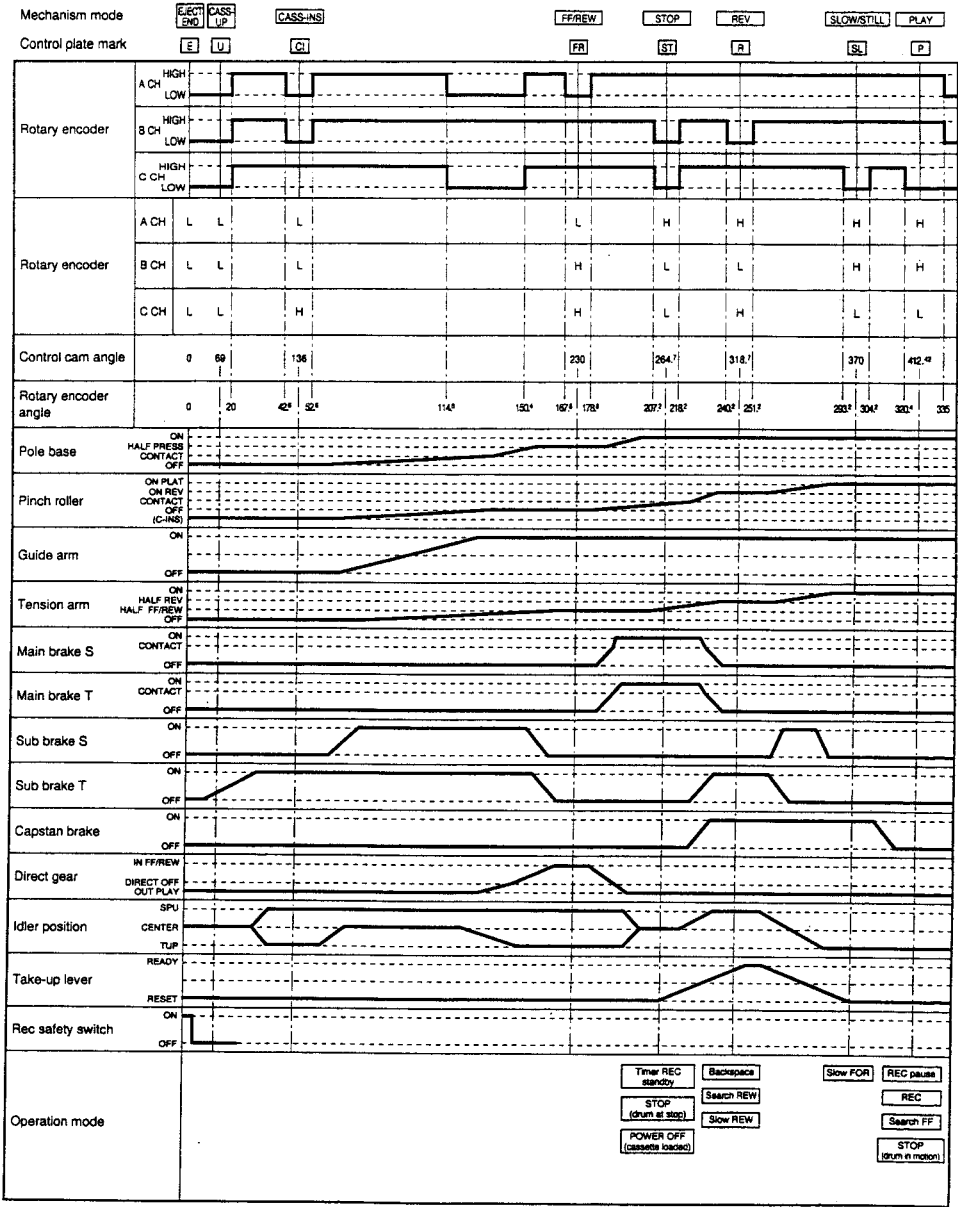
2. Install the mechanism to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism)
Make sure that all the connectors for the mechanism and the Main board are correctly installed.



3. Securely tighten the three screws (A), especially making sure that the connector CN3001 of the capstan motor is correctly mounted.

Note: When the capstan motor has been replaced with a new one, perform recording in the LP mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).

Mechanism Timing Chart



SECTION 3 ELECTRICAL ADJUSTMENT

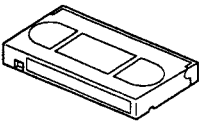
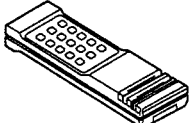
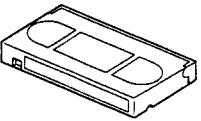
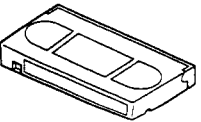
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

- ① Colour television or monitor
- ② Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- ③ Frequency counter
- ④ Digital voltmeter
- ⑤ Signal generator: RF/IF sweep/marker
- ⑥ Signal generator: PAL colour bar, stairstep
- ⑦ Recording tape
- ⑧ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP, stairstep) MHPE	Presetting unit PTU94008
	
Alignment tape (S-VHS, SP/LP, colour bar) MH-2H	LPF PTU93006
	
Alignment tape (SP, stairstep) MHP	
	

3.1.3 Colour bar signal, colour bar pattern

● PAL colour bar signal

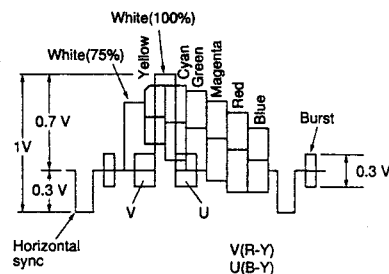


Fig.3-1-1 PAL colour bar signal waveform

● PAL colour bar pattern

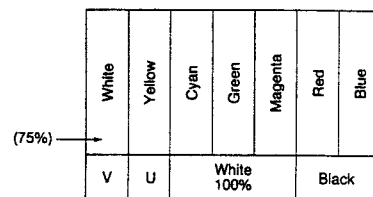


Fig.3-1-2 PAL colour bar pattern

Note:

The system control circuit of this model has an automatic recognition about the ON-OFF control of the **DOCTOR SYSTEM**.

3.2 SERVO CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
 - Set VCR to the mode A by remote controller.
 - Use only buttons "O", depressing other buttons during adjustment may cause adjustment errors.

3.2.1 PB switching point

Signal	• Alignment tape [MHPE], Stairstep • Alignment tape [MHP], Stairstep
Mode	• PB • TBC : OFF
Equipment	• Oscilloscope
Measurement point	• VIDEO OUT TERMINAL
Trigger slope (-)	• TP111(DRUM FF)
Adjustment tool	• Presetting unit [PTU94008]
Specification	• $8.0 \pm 0.5H$ [MHPE] • $7.5 \pm 0.5H$ [MHP]

- (1) Playback the stairstep signal of the alignment tape [MHPE].
- (2) Connect an oscilloscope to VIDEO OUT TERMINAL and TP111 (negative slope), and then observe VIDEO OUT TERMINAL.
- (3) Adjust by pressing "E" or "F" buttons of the presetting unit so that the switching point becomes $8.0 \pm 0.5H$ from V.sync.
- (4) Depress the STOP button.
- (5) Playback the stairstep signal of the alignment tape [MHP].
- (6) Adjust by pressing "E" or "F" buttons of the presetting unit so that the switching point becomes $7.5 \pm 0.5H$ from V.sync.
- (7) Depress the STOP button.

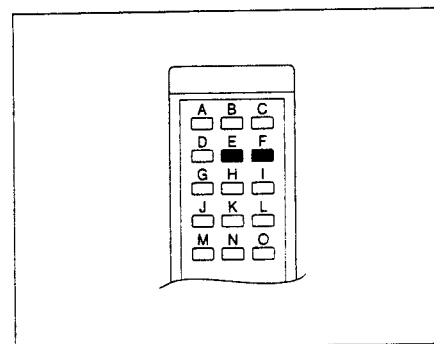


Fig. 3-2-1 Presetting unit

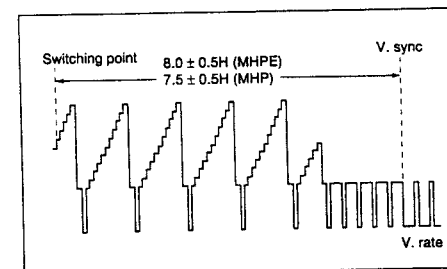


Fig. 3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	• Tuner or colour bar
Mode	• SP/LP : REC → PB(SLOW) • S-VHS
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit [PTU94008]
Specification	• Minimum noise

- Notes:**
- Set VCR to the mode A by remote controller.
 - Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.

- (1) Record a colour bar signal in the SP mode.
- (2) Playback recorded signal on the FWD slow mode.
- (3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B" or "C" buttons of the presetting unit.
- (4) Depress the STOP button.
- (5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
- (6) Repeat steps (3) to (5) in the REV slow mode.
- (7) Repeat steps (2) to (6) in the LP mode.

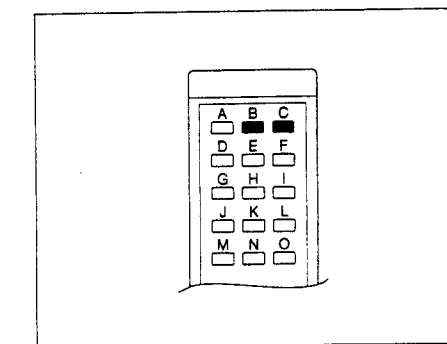


Fig. 3-2-3 Presetting unit

3.2.3 Dynamic drum preset

Signal	• Alignment tape [MHPE-L], Stairstep
Mode	• Automatic tracking OFF
Equipment	• Oscilloscope
Measurement point	• TP106 (PB FM)
Trigger slope (+)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
Specification	• FM waveform flat

Note : Set VCR to the mode A by remote controller.

- (1) Connect an oscilloscope to TP106 and external trigger from TP111 (positive slope).
- (2) Playback the LP stairstep portion of the alignment tape at LP 2 x mode.
- (3) Set the automatic tracking control to the OFF by simultaneously pressing the TV PROG "-" and "+" buttons.
- (4) Adjust for maximum level of the playback FM waveform by depressing TV PROG "-" or "+" buttons.
- (5) Adjust by pressing "M+D" or "M+E" buttons of the presetting unit for the FM waveform is flat as shown in Fig. 3-2-5.
- (6) Adjust for half level of the playback FM waveform from maximum level by depressing TV PROG "-" or "+" buttons.
- (7) Readjust by pressing "M+D" or "M+E" buttons of the presetting unit for the FM waveform is flat as shown in Fig. 3-2-5.
- (8) Record the colour bar signal by LP mode and play it back in the LP FWD slow mode.
- (9) Repeat steps (4) and (5).
- (10) Depress the STOP button.

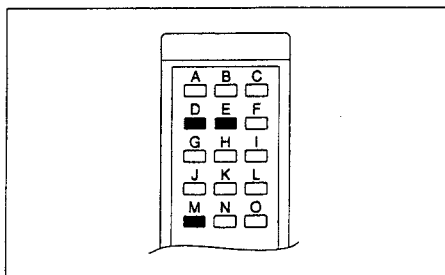


Fig. 3-2-4 Presetting unit

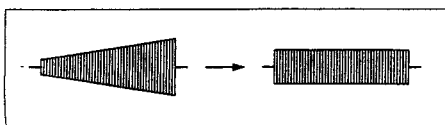


Fig. 3-2-5 PB FM

3.3 VIDEO CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
 - VIDEO circuit adjustments are performed by the EVR system by use of the presetting unit and digit-key remote controller.
 - S-INPUT means Y/C separated video signal in the chart.
 - Set VCR to the mode A by remote controller.

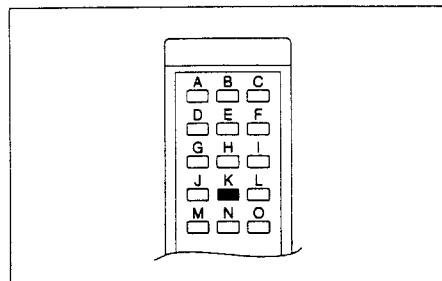


Fig. 3-3-1 Presetting unit

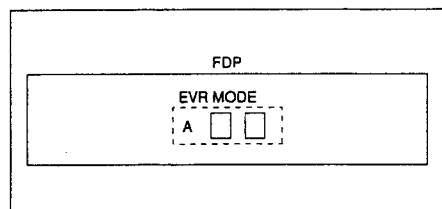


Fig. 3-3-2 EVR mode

3.3.1 Y level

Signal	• Colour bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

- (1) Connect an oscilloscope to Y OUT TERMINAL.
- (2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (3) Set "A : 11" pressing 1 digit key twice of the remote controller.
- (4) Adjust TV PROG "+" or "-" button for 1.00 ± 0.03 Vp-p (See Fig. 3-3-3).
- (5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

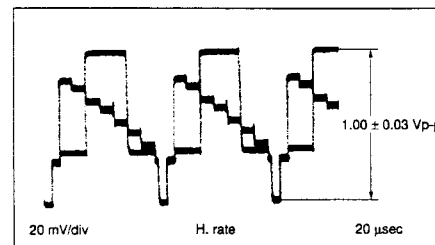


Fig. 3-3-3 EE Y level

3.3.2 SP/LP REC colour level

Signal	• Alignment tape [MH-2H] • Colour bar
Mode	• PB • REC → PB : SP/LP • S-VHS
Equipment	• Oscilloscope
Measurement point	• PB colour out
Trigger slope (-)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit • Digit-key remote controller • LPF fixture (PTU93006)
EVR mode	• A : 2
Specification	• "B" x 150 ± 5% : SP • "B" x 110 ± 5% : LP

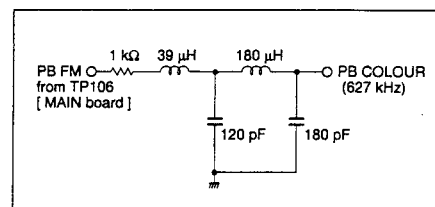


Fig. 3-3-4 LPF

- (1) Connect an oscilloscope to PB COLOUR of a LPF(refer to Fig. 3-3-4) and TP111(negative slope) on the MAIN board.
- (2) Playback the SP colour bar signal of MH-2H alignment tape.
- (3) Set the tracking of the Front panel to the Auto tracking off position by simultaneously pressing the TV PROG "+" and "-" buttons.
- (4) Adjust by pressing the TV PROG "+" or "-" buttons of the Front panel for maximum level of the colour waveform and make a note of the higher colour level "B".
- (5) Press the STOP/EJECT button and eject the MH-2H alignment tape.
- (6) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.

- (7) Set "A : 2" by pressing 2 digit key of the remote controller.
- (8) Before recording, adjust TV PROG "+" or "-" button of the remote controller so that the higher level channel becomes 150 ± 5% : SP (110 ± 5% : LP) of the note "B" level during playback as shown in Fig. 3-3-5.
- (9) Record a colour bar signal in SP (LP) mode, and playback recorded colour bar signal.
- (10) Set normal VCR mode by pressing "K" button again so adjustment data is memorized.

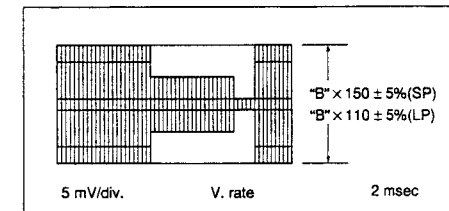


Fig. 3-3-5 REC colour level

3.3.3 PB Y level (S-VHS/VHS)

Signal	• Colour bar • S-VHS/VHS
Mode	• PB : SP
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

- (1) Connect an oscilloscope to Y OUT TERMINAL.
- (2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (3) Set "A : 11" pressing 1 digit key twice of the remote controller.
- (4) Record a colour bar signal in the S-VHS mode, and playback recorded colour bar signal.
- (5) Adjust TV PROG "+" or "-" button for 1.00 ± 0.03 Vp-p as shown in Fig. 3-3-6.
- (6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.
- (7) Repeat steps (1) to (6) in the VHS mode.

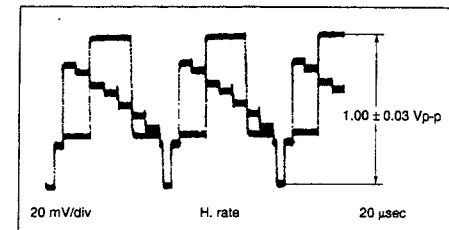


Fig. 3-3-6 PB Y level

3.3.4 S-VHS VIDEO EQ

Signal	• S INPUT • Video sweep
Mode	• REC → PB : SP/LP • S-VHS • EDIT REC : OFF PB : ON
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Trigger slope (-)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit • Digit-key remote controller
Specification	• 3.6 ± 0.2 scale : SP • 3.2 ± 0.2 scale : LP

- (1) Connect an oscilloscope to Y OUT TERMINAL and TP111 (negative slope).
- (2) Record a video sweep signal in S-VHS SP mode, then play it back.
- (3) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (4) Set "A : 3" by pressing 3 digit key of the remote controller.
- (5) When assuming the 100 KHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust TV PROG "+" or "-" button on the front panel or the 10-key remote control so that the 3.00 MHz is set at 3.6 ± 0.2 scale (-2 ± 0.5 dB) while observing Y OUT of the S output (See Fig. 3-3-7).
- (6) The EVR mode is canceled by pressing the "K" button after the adjustment, and the adjusted value is stored.
- (7) Also, it records and plays back the sweep signal in the LP mode.
- (8) Carry out the step (3) and (4).
- (9) When assuming the 100 kHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust TV PROG "+" or "-" button on the front panel or the 10-key remote control so that the 3.00 MHz is set at 3.2 ± 0.2 scale (-3 ± 0.5 dB) while observing Y OUT of the S output (See Fig. 3-3-7).

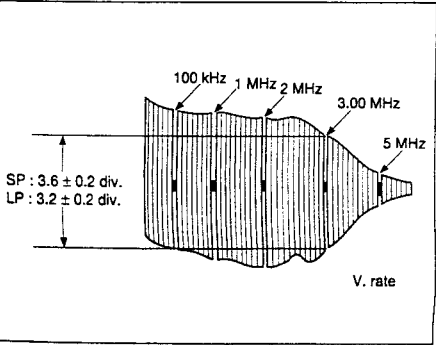


Fig. 3-3-7 S-VHS VIDEO EQ

3.3.5 D/A level

Signal	• Colour bar • S-VHS
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• CN1003-3 pin (Y OUT) [3D S-VHS board]
Adjustment part	• VR1401 (D/A LEVEL) [3D S-VHS board]
Specification (NOTE)	• 2.05 Vp-p (REFERENCE VALUE)

- (1) Connect the oscilloscope to the CN1003-3 pin(Y OUT) on the 3D S-VHS board.
- (2) Confirm the Y level value during external S input.
- (3) Switch the input signal to the external input, then adjust the VR1401 on the 3D S-VHS board so that the Y level value becomes the same level value which was confirmed at the step (2).

Note: • The adjusted value of 2.05 Vp-p is a reference value which should be obtained during external S input. The value should be adjusted to the one which was confirmed at step (2).

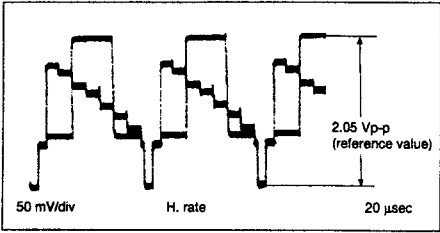


Fig. 3-3-8 D/A LEVEL

3.3.6 Pilot burst level

Signal	• Colour bar • S-VHS
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• TP1001 (FSC PHASE) [3D S-VHS board]
Adjustment part	• VR1002 (P. BURST LEVEL ADJ) [3D S-VHS board]
Specification	• "B" x 110 ± 10%

- (1) Connect the oscilloscope to the TP1001 (FSC PHASE) on the 3D S-VHS board.
- (2) Load an S-VHS tape then set the unit to the S-VHS EE mode.
- (3) Adjust the VR1002 of the 3D S-VHS so that the pilot burst level becomes "B" x 110 ± 10% against the value of the burst level "B".

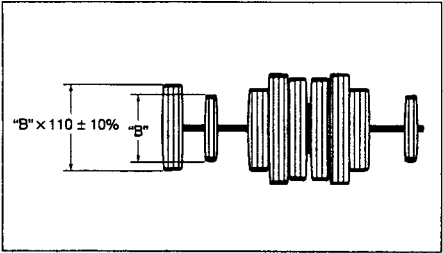


Fig. 3-3-9 PILOT BURST LEVEL

3.3.7 Auto picture

Signal	• Monoscope
Mode	• REC → PB : SP/LP • S-VHS/VHS
Adjustment tool	• Presetting unit [PTU94008]
Specification	• STOP mode

- (1) Record a monoscope signal in the S-VHS/SP mode.
- (2) Playback the recorded signal.
- (3) Press the "L" button of the presetting unit during playback.
- (4) Confirm that VCR will go into the STOP mode.
- (5) Repeat steps (2) to (4) in the LP mode.
- (6) Repeat steps (1) to (5) in the VHS mode.

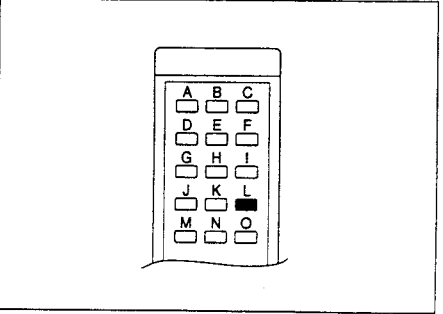


Fig. 3-3-10 Presetting unit

3.4 ON SCREEN CIRCUIT

Note: • Set VCR to the mode A by remote controller.

3.4.1 Character position

Signal	• No signal
Mode	• EE
Equipment	• TV-monitor
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
Specification	• Character center

- (1) Press the MENU button and display the on screen character.
- (2) Observe TV-monitor and center position of character by pressing "H" button of the presetting unit.

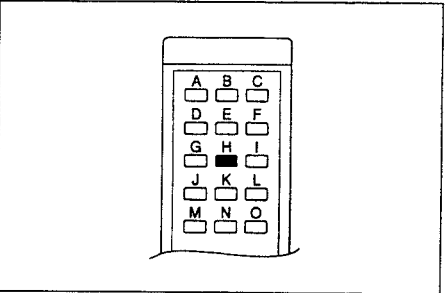


Fig. 3-4-1 Presetting unit

3.5 SYSCON CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.

• When perform this adjustment, remove the MECHANISM assembly.

3.5.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TL3001 round (SYS. CLK)
Adjustment part	• C3018 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 μsec.]

- (1) Connect the frequency counter to TL3001(SYS.CLK) round and GND.
- (2) Connect the short wire between TL3003(TEST) round and Vcc(5V).
- (3) Short the leads of capacitor C3015 once in order to re-set the IC3001.
- (4) Disconnect the short wire between TL3003 and Vcc then connect it again quickly.
- (5) Adjust the C3018 trimmer capacitor so that the output from TL3001(SYS.CLK) falls within the 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 μ sec.) range.

3.6 AUDIO CIRCUIT

Notes:

- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
- This adjustment should be done after the video circuit SP and LP REC colour level are adjusted.
- GND(Ground) should be taken from the tuner board shield.

3.6.1 REC FM level

Signal	•AUX •VIDEO : Colour bar •AUDIO : No signal
Mode	•REC → PB : LP •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP2253 (A. PB. FM)
Trigger slope (-)	•TP111 (DRUM FF)
Adjustment part	•VR2251 (FMA REC FM)
Specification	• 600 ± 100 mVp-p

- (1) Connect an oscilloscope to TP2253.
- (2) Record a colour bar signal without an audio signal in S-VHS LP mode then playback.
- (3) Adjust VR2251 for 600 mVp-p playback level of higher channel level before recording.
- (4) Confirm that the lower channel level is more than 450 mVp-p.

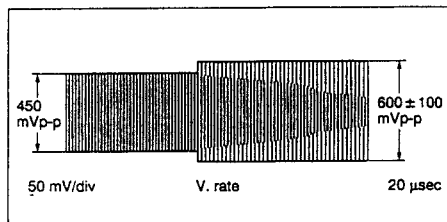


Fig. 3-6-1 Audio REC FM level

SECTION 4 CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions

The Components identified by the symbol  are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

- (1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
Chip resistors are 1/16 W.

K: K Ω (1000 Ω), M: M Ω (1000K Ω)

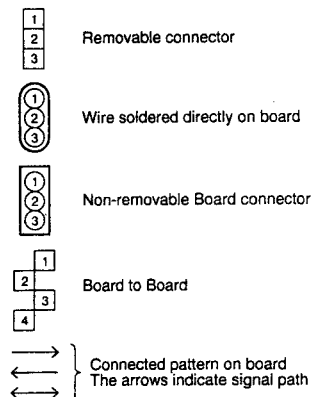
- (2) All capacitance values are in μ F, (P: PF).
- (3) All inductance values are in μ H, (m: mH).
- (4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

2. Indications of control voltage

AUX : Active at high

AUX or AUX(L) : Active at low

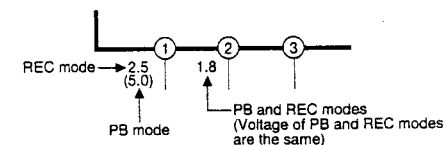
3. Interpreting Connector Indications



4. Voltage measurement

- (1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode
— : Unmeasurable or unnecessary to measure
- (2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, Normal VHS mode
PB : REC then playback it
- (3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode

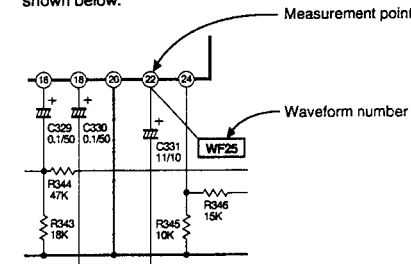
- (4) Indication on schematic diagram
Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



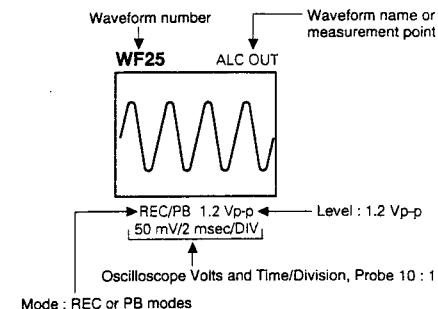
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

- (1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode
- (2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode
PB : REC then playback it
- (3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
- (4) Indication on schematic diagram
Waveform indications on the schematic diagram are as shown below.

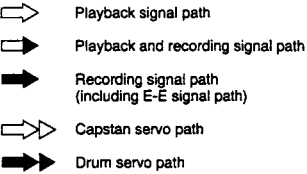


5) Waveform indications

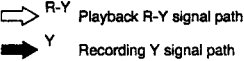


6. Signal path Symbols

The arrows indicate the signal path as follows.

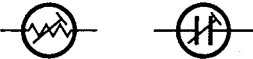


(Example)



7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.



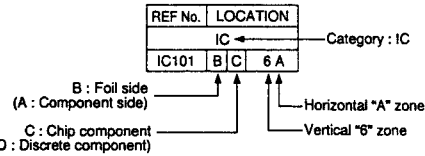
CIRCUIT BOARD NOTES

1. Foil and Component sides

- 1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.
- 2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

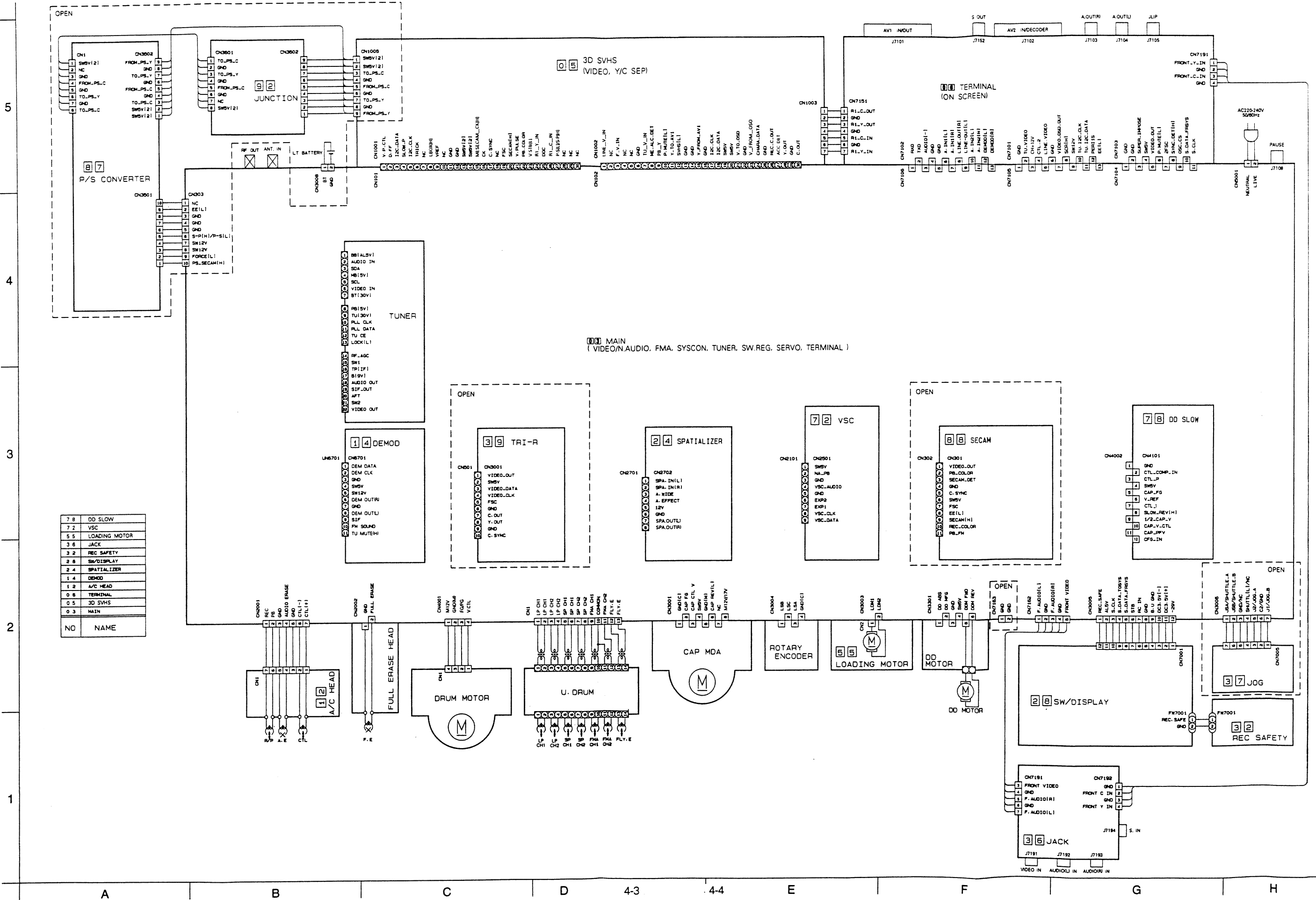
Parts location are indicated by guide scale on the circuit board.



Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS



5



3

B

C

4-6

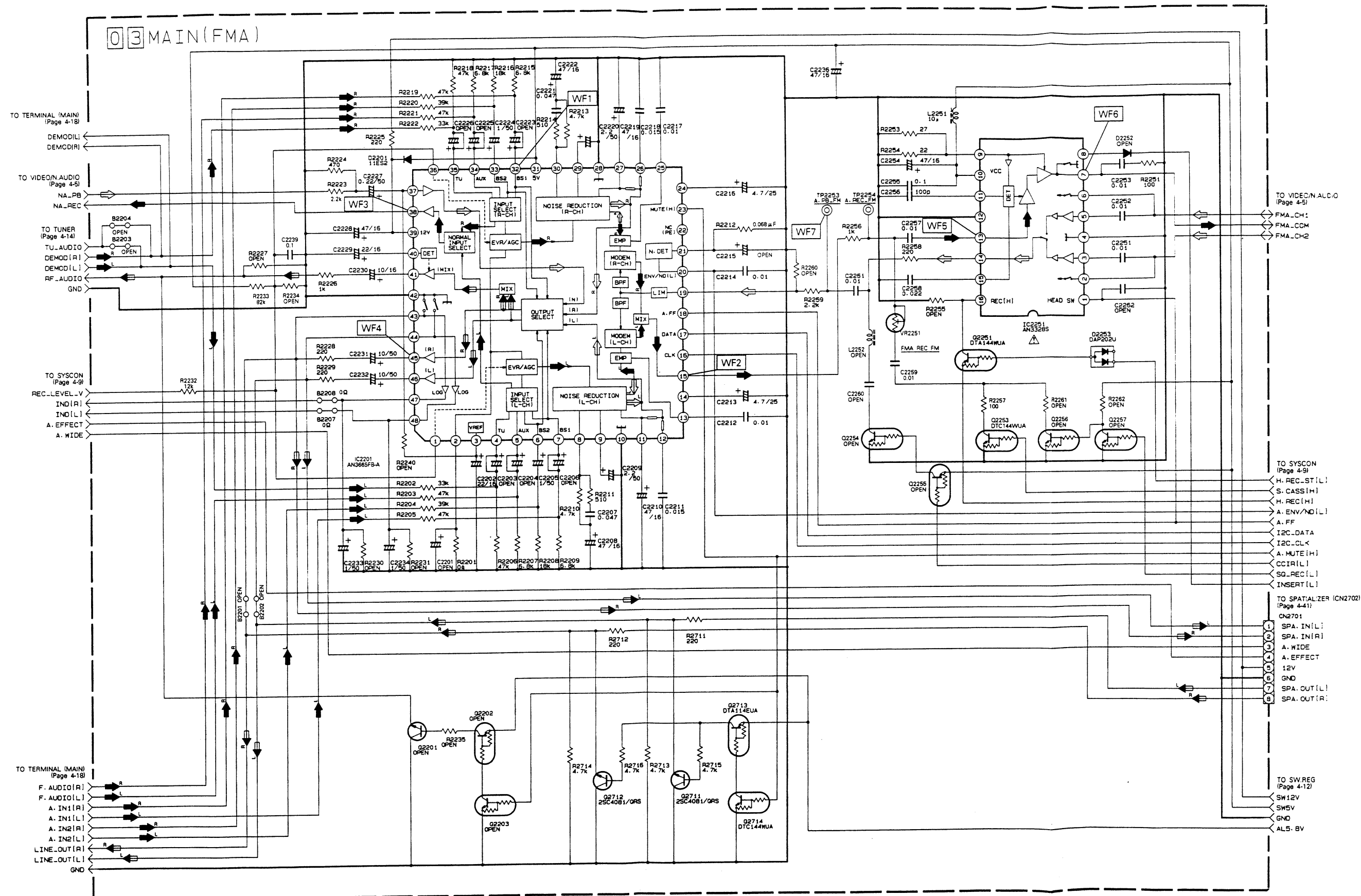
E

F

G

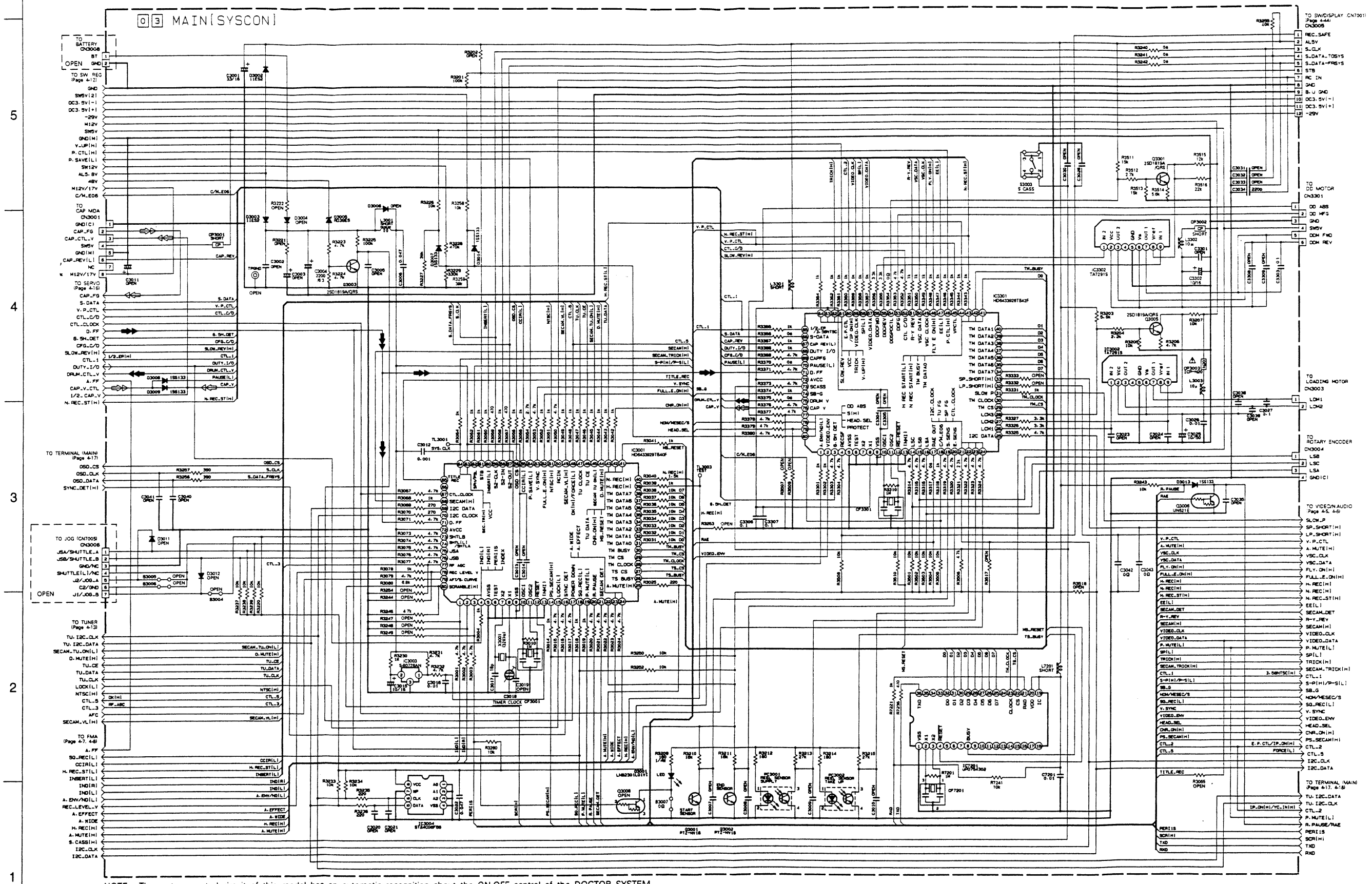
H

4.3 FMA SCHEMATIC DIAGRAM



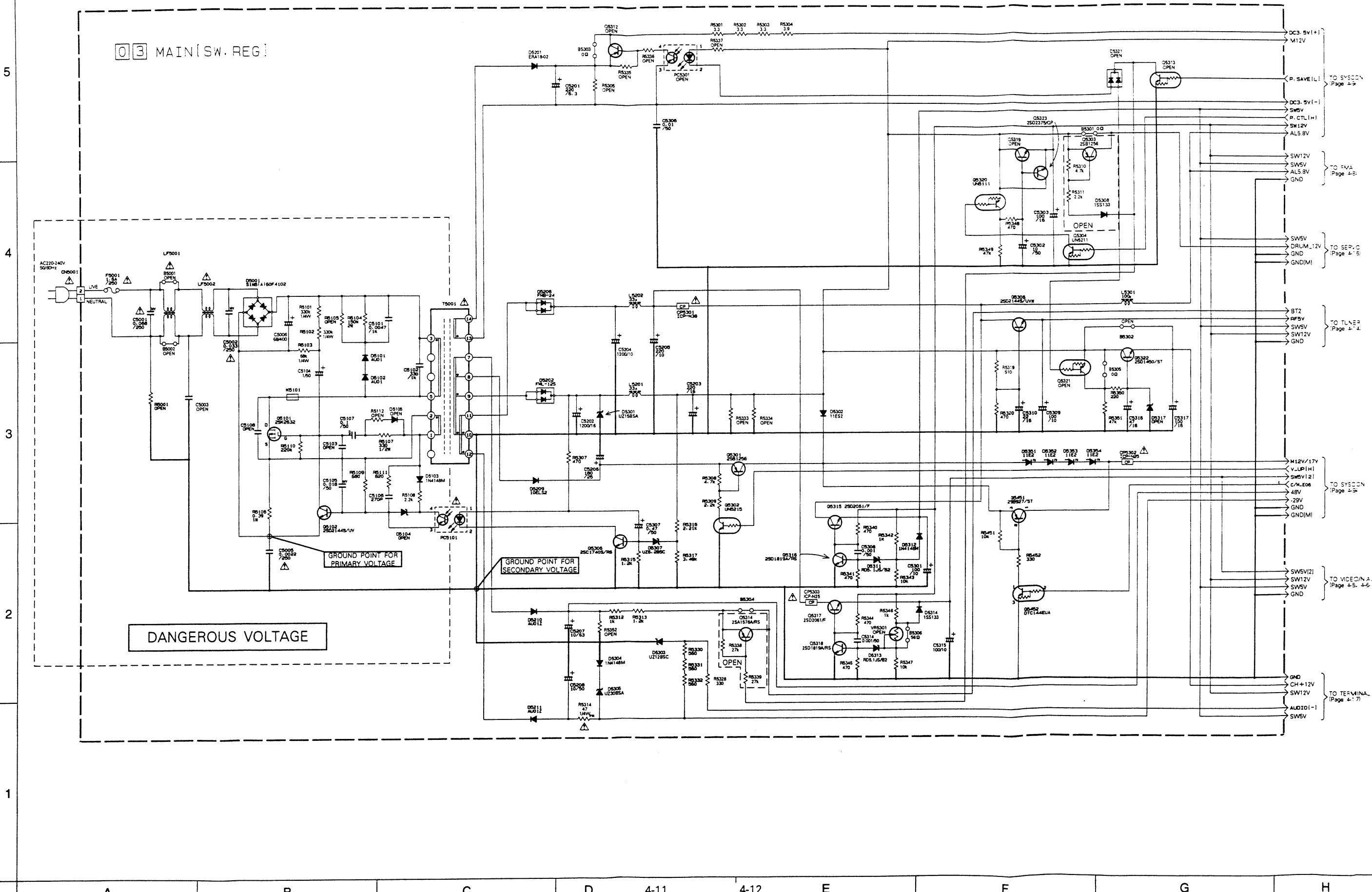
NOTE : For FMA waveforms, please refer to page 4-19.

4.4 SYSTEM CONTROL SCHEMATIC DIAGRAM



NOTE : The system control circuit of this model has an automatic recognition about the ON-OFF control of the DOCTOR SYSTEM.

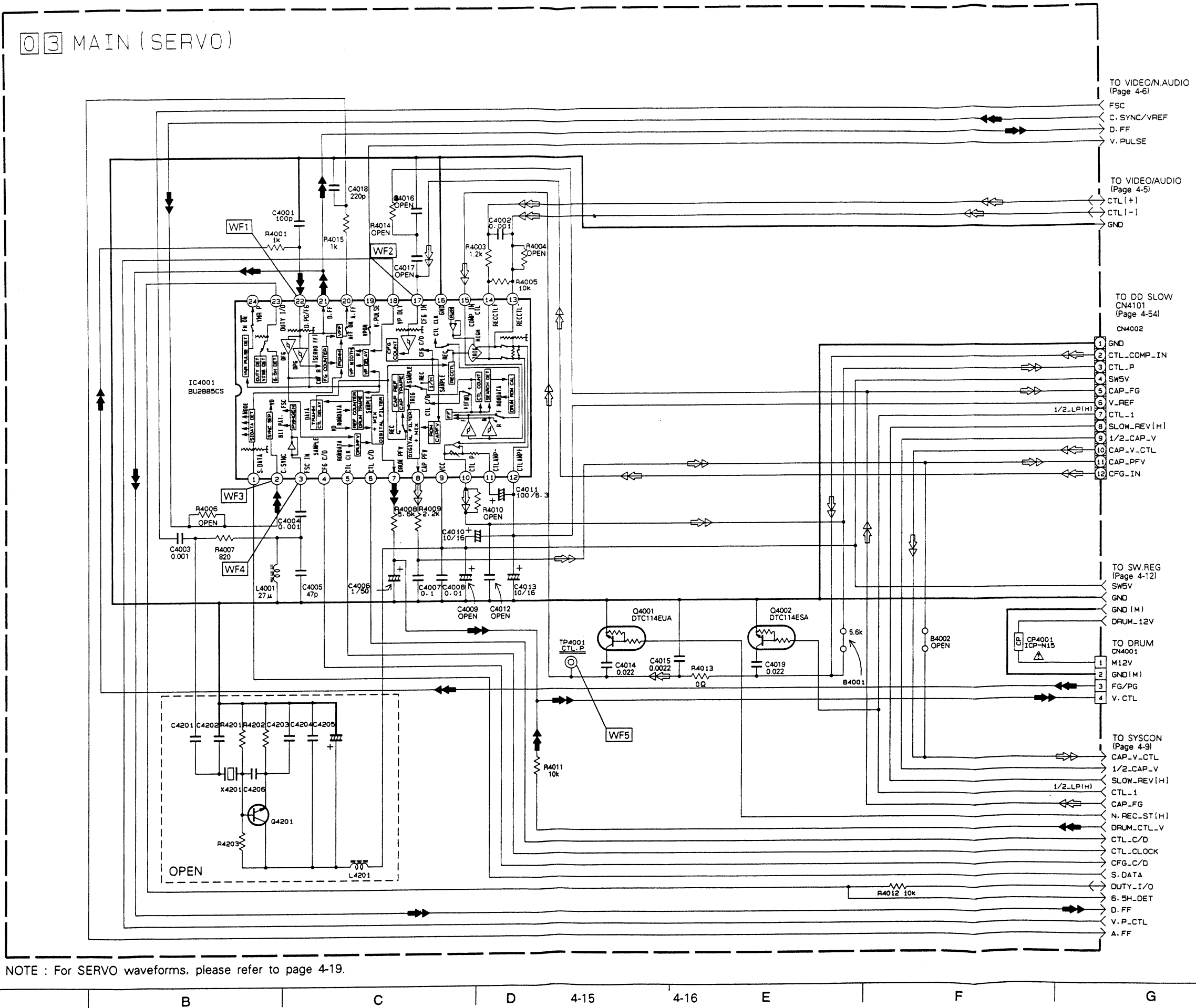
4.5 SWITCHING REGULATOR SCHEMATIC DIAGRAM



5

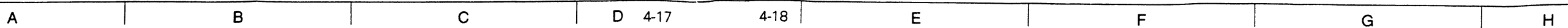


4.7 SERVO SCHEMATIC DIAGRAM



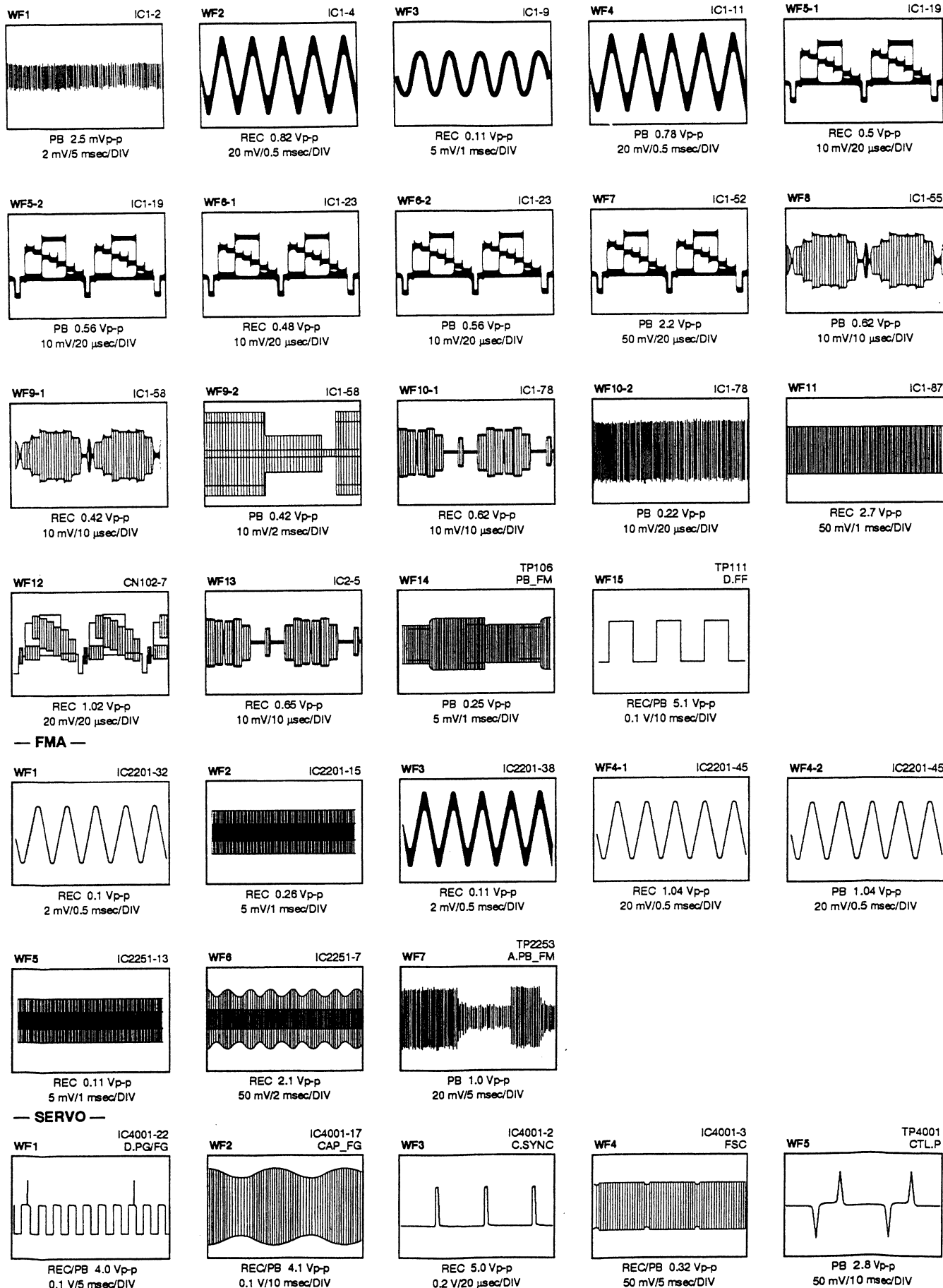
NOTE : For SERVO waveforms, please refer to page 4-19.

A vertical scale with five horizontal tick marks. The numbers 1, 2, 3, 4, and 5 are placed to the left of the tick marks, increasing from bottom to top.



WAVEFORMS

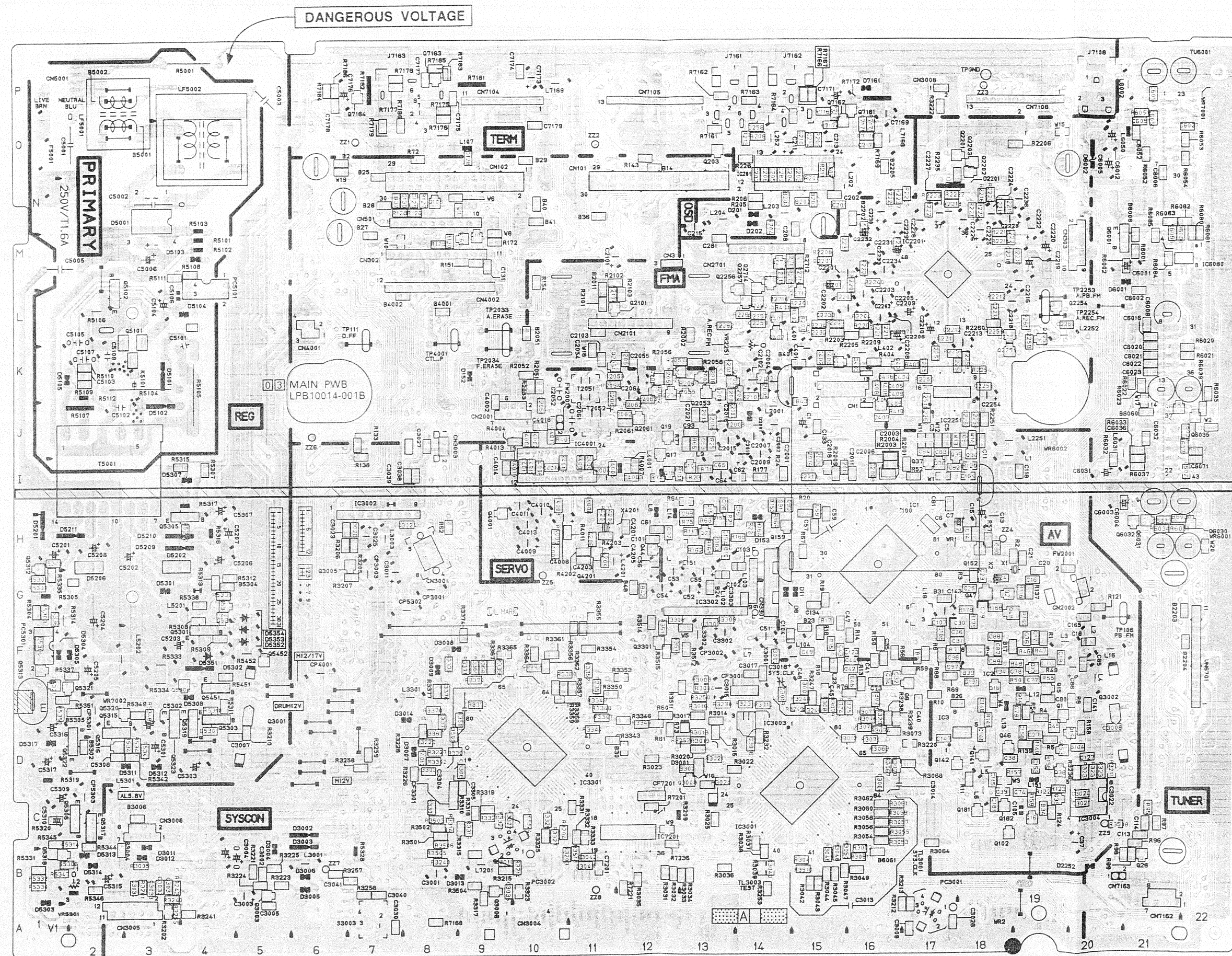
— VIDEO/N.AUDIO —



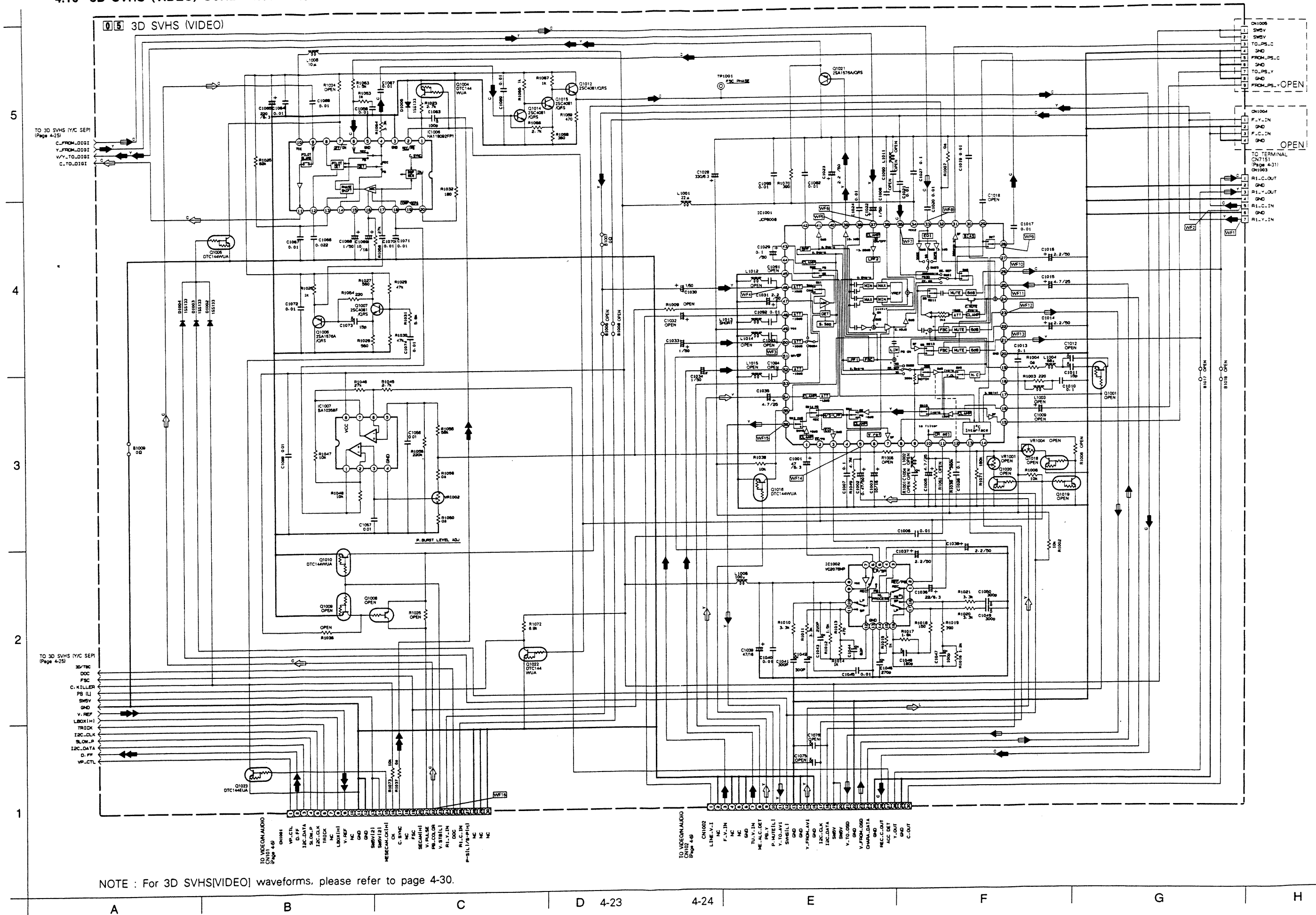
COMPONENT PARTS LOCATION GUIDE <MAIN>

[illegible]

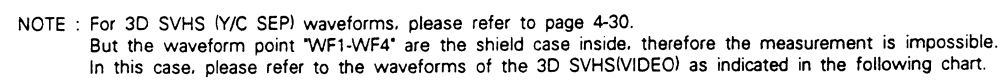
4.9 MAIN AND A/C HEAD CIRCUIT BOARDS



4.10 3D SVHS (VIDEO) SCHEMATIC DIAGRAM



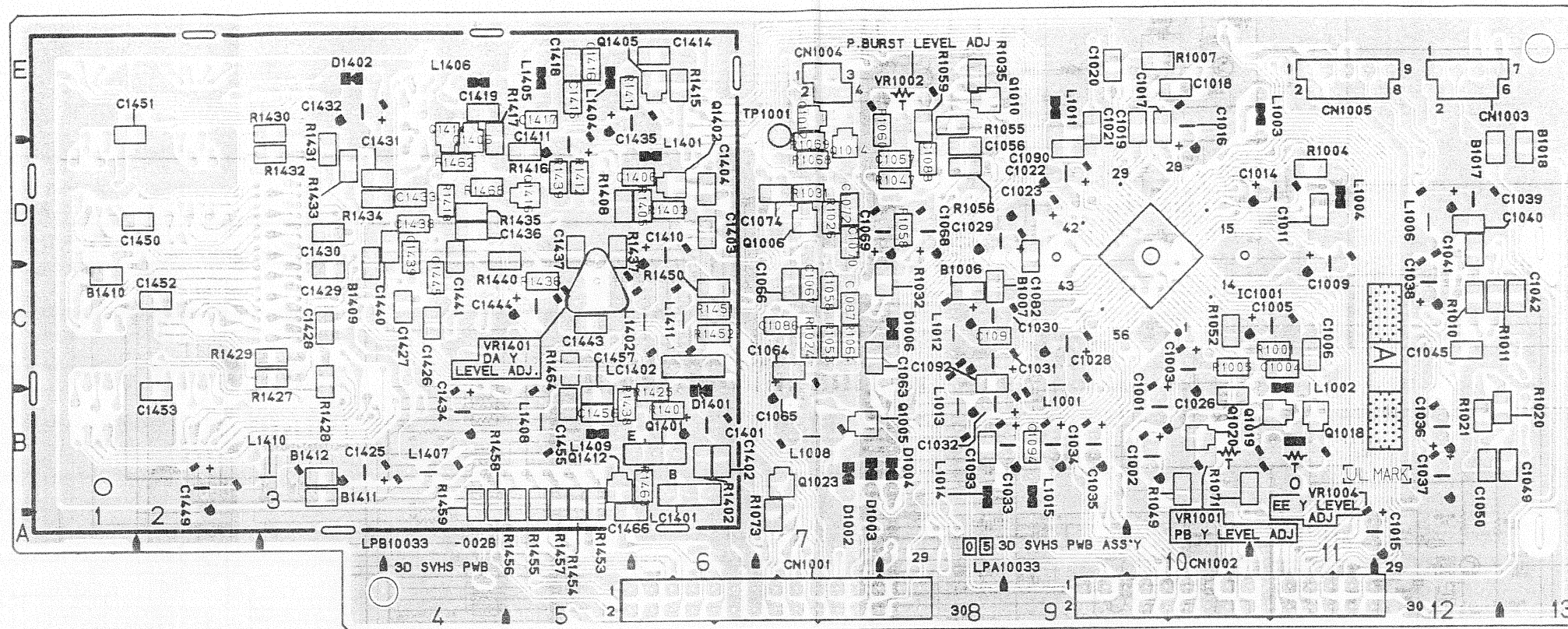
05 3D SVHS[Y/C SEP]



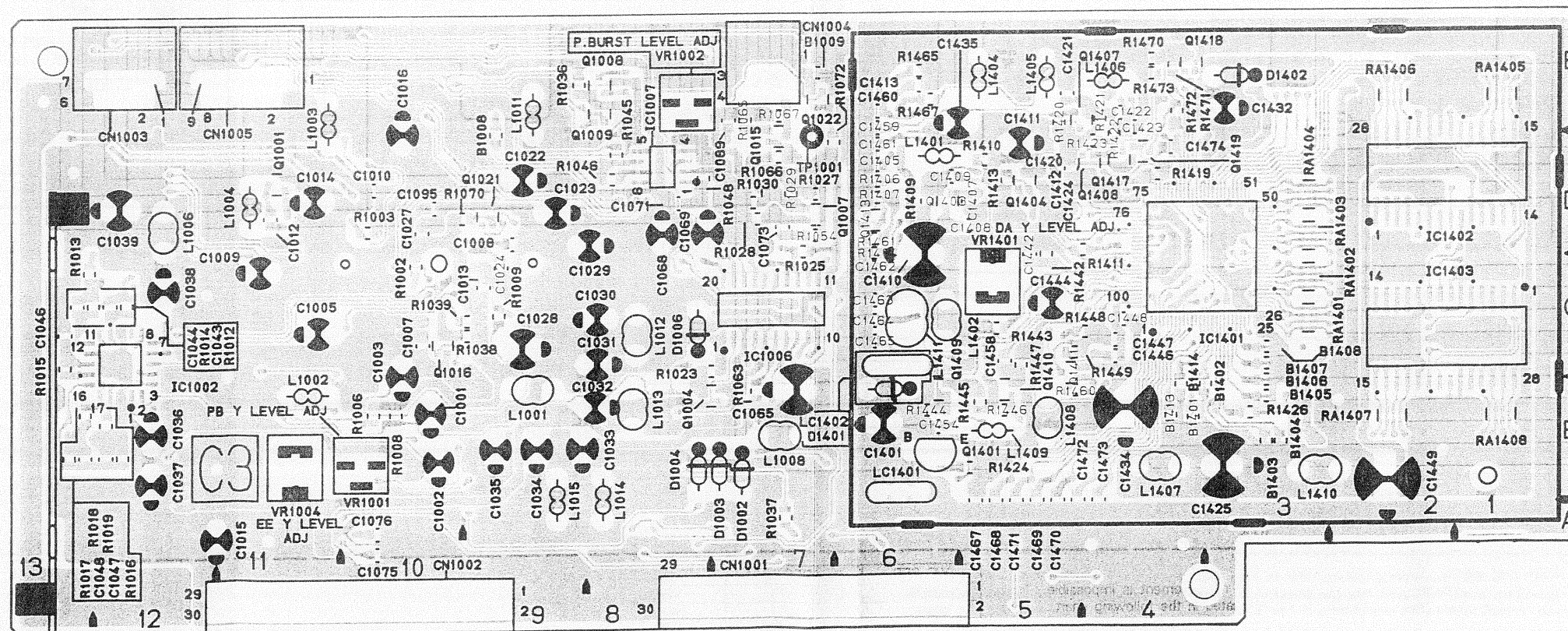
Y/C SEP	VIDEO
WF1	WF6
WF2	WF8
WF3	WF5
WF4	WF16

4.12 3D SVHS CIRCUIT BOARD

— FOIL SIDE (B) —



— COMPONENT SIDE (A) —



COMPONENT PARTS LOCATION GUIDE <3D SVHS>

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR		C1066	B C 7C	C1435	A D 5E	IC1002	A C 12C	Q1409	A C 6B	R1056	B C 8D	R1443	A C 5C
C1001	A D 10B	C1067	B C 7C	C1436	B C 4D	IC1006	A C 7C	Q1410	A C 5B	R1058	B C 8D	R1444	A C 6B
C1002	A D 10B	C1068	A D 8D	C1437	B C 5D	IC1007	A C 8D	Q1411	A C 5C	R1059	B C 8E	R1445	A C 5B
C1003	A D 10C	C1069	A D 8D	C1438	B C 4D	IC1401	A C 4D	Q1412	B C 5B	R1060	B C 8E	R1446	A C 5B
C1004	B C 11C	C1070	B C 7D	C1439	B C 4D	IC1402	A C 2D	Q1413	A C 6D	R1063	A C 7B	R1447	A C 5C
C1005	A D 11C	C1071	A C 8D	C1440	B C 4D	IC1403	A C 2C	Q1414	B C 4D	R1064	B C 7C	R1448	A C 4C
C1006	B C 11C	C1072	B C 7D	C1441	B C 4D	COIL		Q1416	B C 5D	R1065	A C 7E	R1449	A C 5C
C1007	A C 10C	C1073	A C 7D	C1442	A C 5D	L1001	A D 9B	Q1417	A C 4D	R1066	A C 7D	R1450	B C 6C
C1008	A C 9D	C1074	B C 7D	C1443	B C 5C	L1002	A D 11B	Q1418	A C 4E	R1067	A C 7E	R1451	B C 6C
C1009	A D 11C	C1075	A C 10A	C1444	A D 5C	L1003	A D 11D	Q1419	A C 4D	R1068	B C 7D	R1452	B C 6C
C1010	A C 10D	C1076	A C 10A	C1445	B C 4C	L1004	A D 11D	RESISTOR		R1069	B C 7D	R1453	B C 5B
C1011	B C 11D	C1082	B C 9D	C1446	A C 4C	L1006	A D 12D	R1001	B C 11C	R1070	A C 10D	R1454	B C 5B
C1012	A C 11D	C1086	B C 7C	C1447	A C 4C	L1008	A D 7B	R1002	A C 10C	R1071	B C 11B	R1455	B C 5B
C1013	A C 9C	C1087	B C 7C	C1448	A C 4C	L1011	A D 9E	R1003	A C 10D	R1072	A C 7D	R1456	B C 5B
C1014	A D 11D	C1088	B C 8D	C1449	A D 2B	L1012	A D 8C	R1004	B C 11D	R1073	B C 7A	R1457	B C 5B
C1015	A D 12A	C1089	A C 7E	C1450	B C 2D	L1013	A D 8B	R1005	B C 10C	R1401	B C 6B	R1458	B C 4B
C1016	A D 10D	C1090	B C 9D	C1451	B C 1E	L1014	A D 8A	R1006	A C 10B	R1402	B C 6B	R1459	B C 4B
C1017	B C 10E	C1091	B C 8C	C1452	B C 2C	L1015	A D 9A	R1007	B C 10E	R1403	B C 6D	R1460	A C 5B
C1018	B C 10E	C1092	B C 8B	C1453	B C 2B	L1401	A D 6D	R1008	A C 10B	R1404	A C 6D	R1461	A C 6D
C1019	B C 10E	C1093	B C 8B	C1454	A C 6B	L1402	A D 6C	R1009	A C 9C	R1405	B C 6D	R1462	B C 4D
C1020	B C 9E	C1094	B C 9B	C1455	B C 5B	L1404	A D 5E	R1010	B C 12C	R1406	A C 6D	R1463	B C 6B
C1021	B C 9E	C1095	A C 10D	C1456	B C 5B	L1405	A D 5E	R1011	B C 12C	R1407	A C 6D	R1464	B C 5C
C1022	A D 9D	C1401	A D 6B	C1457	B C 5B	L1406	A D 4E	R1012	A C 12C	R1408	B C 5D	R1465	A C 6E
C1023	A D 9D	C1402	B C 6B	C1458	A C 5C	L1407	A D 4B	R1013	A C 13C	R1409	A C 6D	R1467	A C 6E
C1024	A C 9C	C1403	B C 6D	C1459	A C 6E	L1408	A D 5B	R1014	A C 13C	R1410	A C 5D	R1468	B C 4D
C1026	B C 10B	C1404	B C 6D	C1460	A C 6E	L1409	A D 5B	R1015	A C 13C	R1411	A C 5D	R1470	A C 4E
C1027	A C 10D	C1405	A C 6D	C1461	A C 6D	L1410	A D 3B	R1016	A C 12B	R1412	B C 5D	R1471	A C 4E
C1028	A D 9C	C1406	B C 6D	C1462	A C 6C	L1411	A D 6C	R1017	A C 13B	R1413	A C 5D	R1472	A C 4E
C1029	A D 9D	C1407	A C 5D	C1463	A C 6C	TRANSISTOR		R1018	A C 13B	R1414	B C 6E	R1473	A C 4E
C1030	A D 8C	C1408	A C 5D	C1464	A C 6C	Q1001	A C 11D	R1019	A C 12B	R1415	B C 6E	OTHER	
C1031	A D 9C	C1409	A C 6D	C1465	A C 6C	Q1004	A C 8B	R1020	B C 13B	R1416	B C 5D	LC1401	A D 6B
C1032	A D 9B	C1410	A D 6D	C1466	B C 6A	Q1005	B C 7B	R1021	B C 12B	R1417	B C 4D	LC1402	A D 6C
C1033	A D 9B	C1411	A D 5D	C1467	A C 5B	Q1006	B C 7D	R1023	A C 8C	R1418	B C 4D	RA1401	A C 3C
C1034	A D 9B	C1412	A C 5D	C1468	A C 5B	Q1007	A C 7D	R1024	B C 7C	R1419	A C 4D	RA1402	A C 3C
C1035	A D 9B	C1413	A C 6E	C1469	A C 5B	Q1008	A C 8E	R1025	A C 7D	R1420	A C 5E	RA1403	A C 3D
C1036	A D 12B	C1414	B C 6E	C1470	A C 5B	Q1009	A C 8E	R1026	B C 7D	R1421	A C 4E	RA1404	A C 3D
C1037	A D 12B	C1415	B C 5E	C1471	A C 5B	Q1010	B C 8E	R1027	A C 7D	R1422	A C 4E	RA1405	A C 1E
C1038	A D 12C	C1416	B C 5E	C1472	A C 5B	Q1012	B C 7E	R1028	A C 7D	R1423	A C 4D	RA1406	A C 2E
C1039	A D 12D	C1417	B C 5E	C1473	A C 4B	Q1014	B C 7D	R1029	A C 7D	R1424	A C 5B	RA1407	A C 2B
C1040	B C 12D	C1418	B C 5E	C1474	A C 4D	Q1015	A C 7E	R1030	A C 7D	R1425	B C 6B	RA1408	A C 1B
C1041	B C 12D	C1419	B C 4E	CONNECTOR		Q1016	A C 10C	R1031	B C 7D	R1426	A C 3B	TP1001	A D 7E
C1042	B C 13C	C1420	A C 5D	CN1001	A D 6A	Q1018	B C 11B	R1032	B C 8C	R1427	B C 3C	VR1001	A D 10B
C1043	A C 12C	C1421	A C 5E	CN1002	A D 9A	Q1019	B C 11B	R1033	B C 8E	R1428	B C 3C	VR1002	A D 8E
C1044	A C 13C	C1422	A C 4E	CN1003	A D 12E	Q1020	B C 10B	R1036	A C 9E	R1429	B C 3C	VR1004	A D 11B
C1045	B C 12C	C1423	A C 4E	CN1004	A D 7E	Q1021	A C 9D	R1037	A C 7A	R1430	B C 3E	VR1401	A D 5C
C1046	A C 13C	C1424	A C 5D	CN1005	A D 11E	Q1022	A C 7E	R1038	A C 9C	R1431	B C 3D		
C1047	A C 12B	C1425	A D 3B	DIODE		Q1023	B C 7B	R1039	A C 9C	R1432	B C 3D		
C1048	A C 13B	C1426	B C 4C	D1002	A D 7B	Q1401	A D 6B	R1045	A C 8D	R1433	B C 3D		
C1049	B C 13B	C1427	B C 4C	D1003	A D 7B	Q1402	B C 6D	R1046	A C 8D	R1434	B C 3D		
C1050	B C 12B	C1428	B C 3C	D1004	A D 8B	Q1403	A C 6D	R1047	B C 8D	R1435	B C 4D		
C1056	B C 8D	C1429	B C 3C	D1006	A D 8C	Q1404	A C 5D	R1048	A C 8D	R1436	B C 5C		
C1057	B C 8D	C1430	B C 3D	D1401	A D 6B	Q1405	B C 6E	R1049	B C 10B	R1437	B C 5D		
C1058	B C 7C	C1431	B C 3D	D1402	A D 3E	Q1406	B C 4D	R1052	B C 10C	R1438	B C 5B		
C1063	B C 7C	C1432	A D 3E	IC		Q1407	A C 5E	R1053	B C 7C	R1439	B C 5D		
C1064	B C 7C	C1433	B C 4D	IC1001	B C 10D	Q1408	A C 4D	R1054	A C 7D	R1440	B C 5D		
C1065	A D 7B	C1434	A D 4B					R1055	B C 8E	R1442	A C 5D		

WAVEFORMS

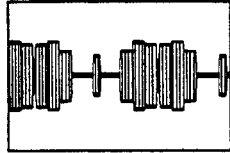
— VIDEO —

WF1 CN1003-7



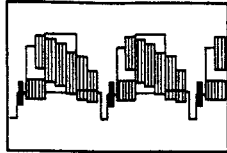
REC 1.0 Vp-p
50 mV/20 μ sec/DIV

WF2 CN1003-5



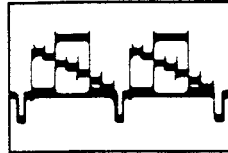
REC 0.68 Vp-p
20 mV/10 μ sec/DIV

WF3 IC1001-50



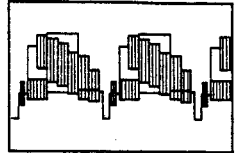
REC 1.0 Vp-p
50 mV/20 μ sec/DIV

WF4 IC1001-46



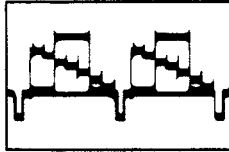
REC 1.0 Vp-p
50 mV/20 μ sec/DIV

WF5 IC1001-39



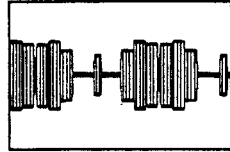
REC 1.8 Vp-p
50 mV/20 μ sec/DIV

WF6 IC1001-37



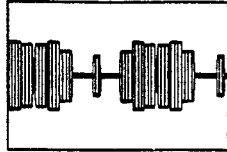
REC 0.8 Vp-p
20 mV/20 μ sec/DIV

WF7 IC1001-35



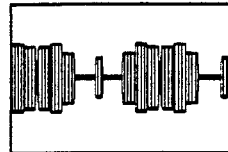
REC 0.7 Vp-p
20 mV/10 μ sec/DIV

WF8-1 IC1001-33



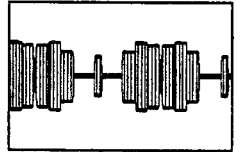
REC 0.34 Vp-p
10 mV/10 μ sec/DIV

WF8-2 IC1001-33



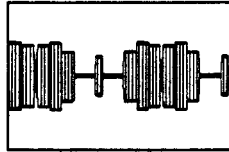
PB 0.42 Vp-p
10 mV/10 μ sec/DIV

WF9 IC1001-28



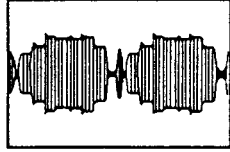
REC 0.68 Vp-p
20 mV/10 μ sec/DIV

WF10-1 IC1001-26



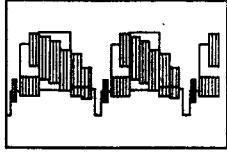
REC 1.4 Vp-p
50 mV/10 μ sec/DIV

WF10-2 IC1001-26



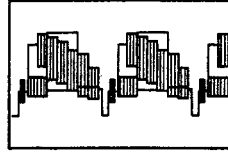
PB 1.2 Vp-p
20 mV/10 μ sec/DIV

WF11 IC1001-25



REC/PB 2.1 Vp-p
50 mV/20 μ sec/DIV

WF12 IC1001-23



REC/PB 2.1 Vp-p
50 mV/20 μ sec/DIV

WF13 IC1001-21



REC/PB 2.1 Vp-p
50 mV/20 μ sec/DIV

WF14 IC1001-5



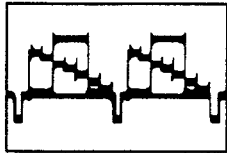
PB 0.54 Vp-p
20 mV/20 μ sec/DIV

WF15-1 IC1001-56



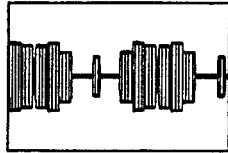
REC 0.5 Vp-p
20 mV/20 μ sec/DIV

WF15-2 IC1001-56



PB 0.58 Vp-p
20 mV/20 μ sec/DIV

WF16 CN1001-22



PB 0.58 Vp-p
10 mV/10 μ sec/DIV

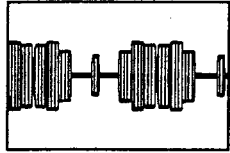
— Y/C SEP —

WF1 IC1401-73



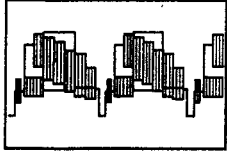
REC 0.9 Vp-p
20 mV/20 μ sec/DIV

WF2 IC1401-75



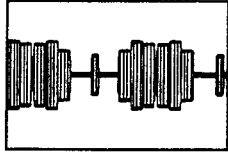
REC/PB 1.0 Vp-p
20 mV/10 μ sec/DIV

WF3 IC1401-82



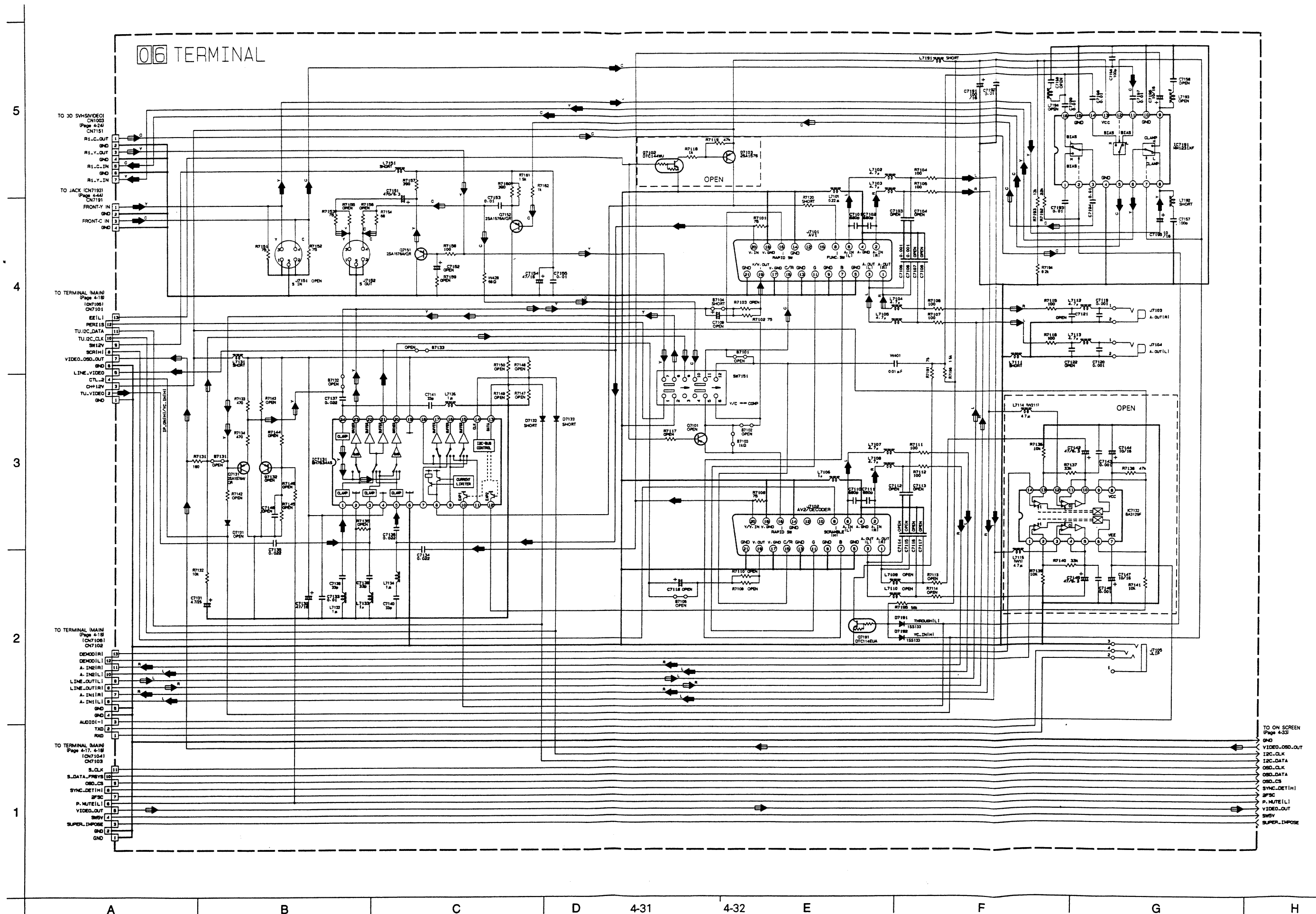
REC 1.9 Vp-p
50 mV/20 μ sec/DIV

WF4 IC1401-87



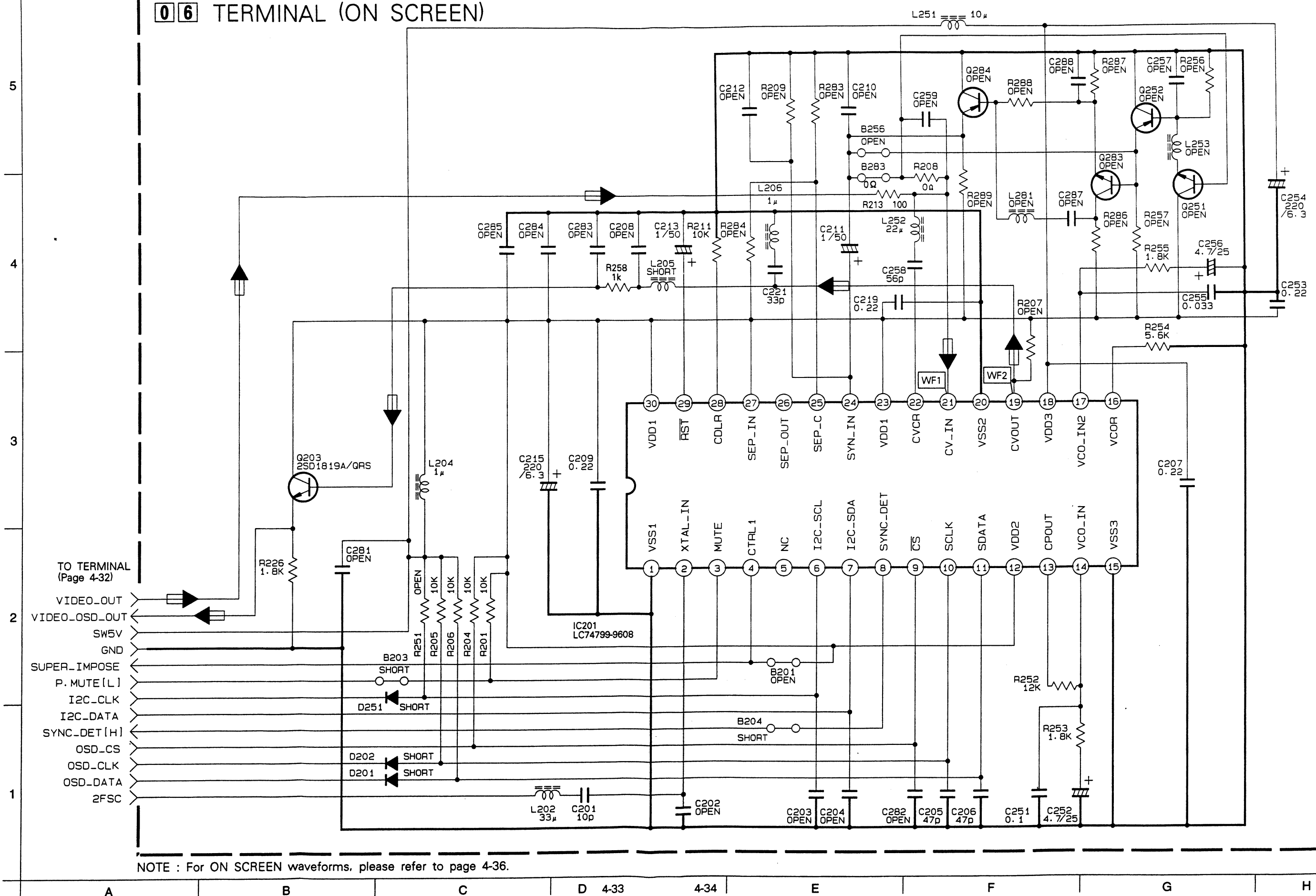
PB 1.4 Vp-p
50 mV/10 μ sec/DIV

4.13 TERMINAL SCHEMATIC DIAGRAM



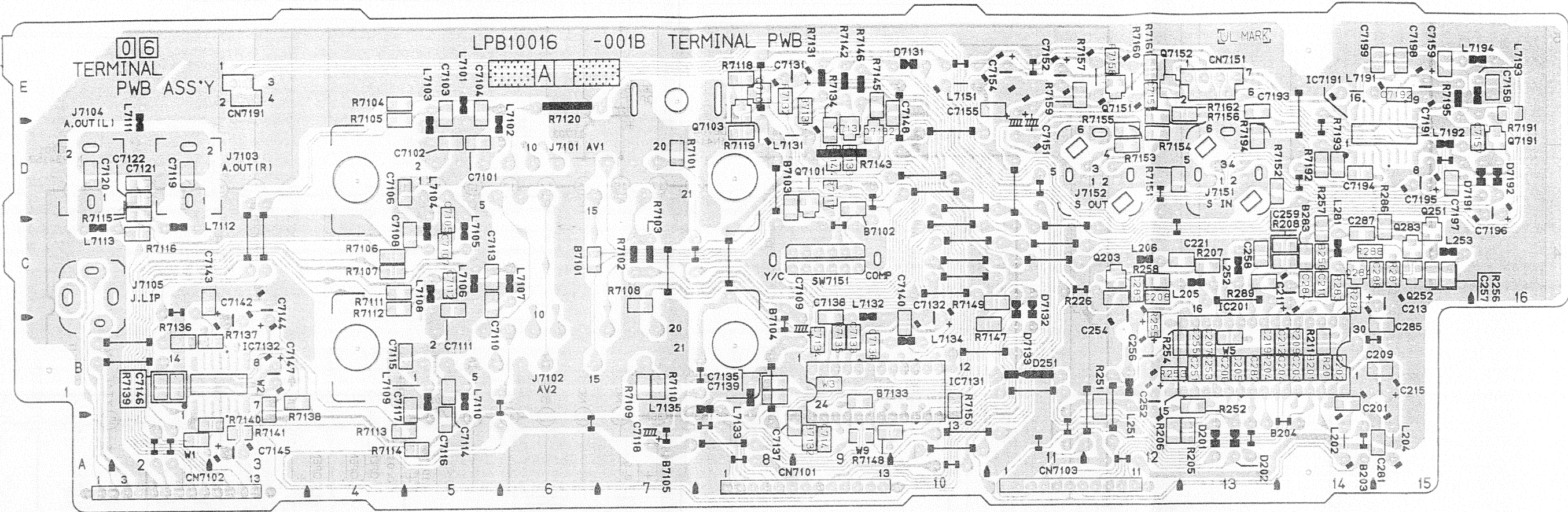
4.14 ON SCREEN SCHEMATIC DIAGRAM

06 TERMINAL (ON SCREEN)



NOTE : For ON SCREEN waveforms, please refer to page 4-36.

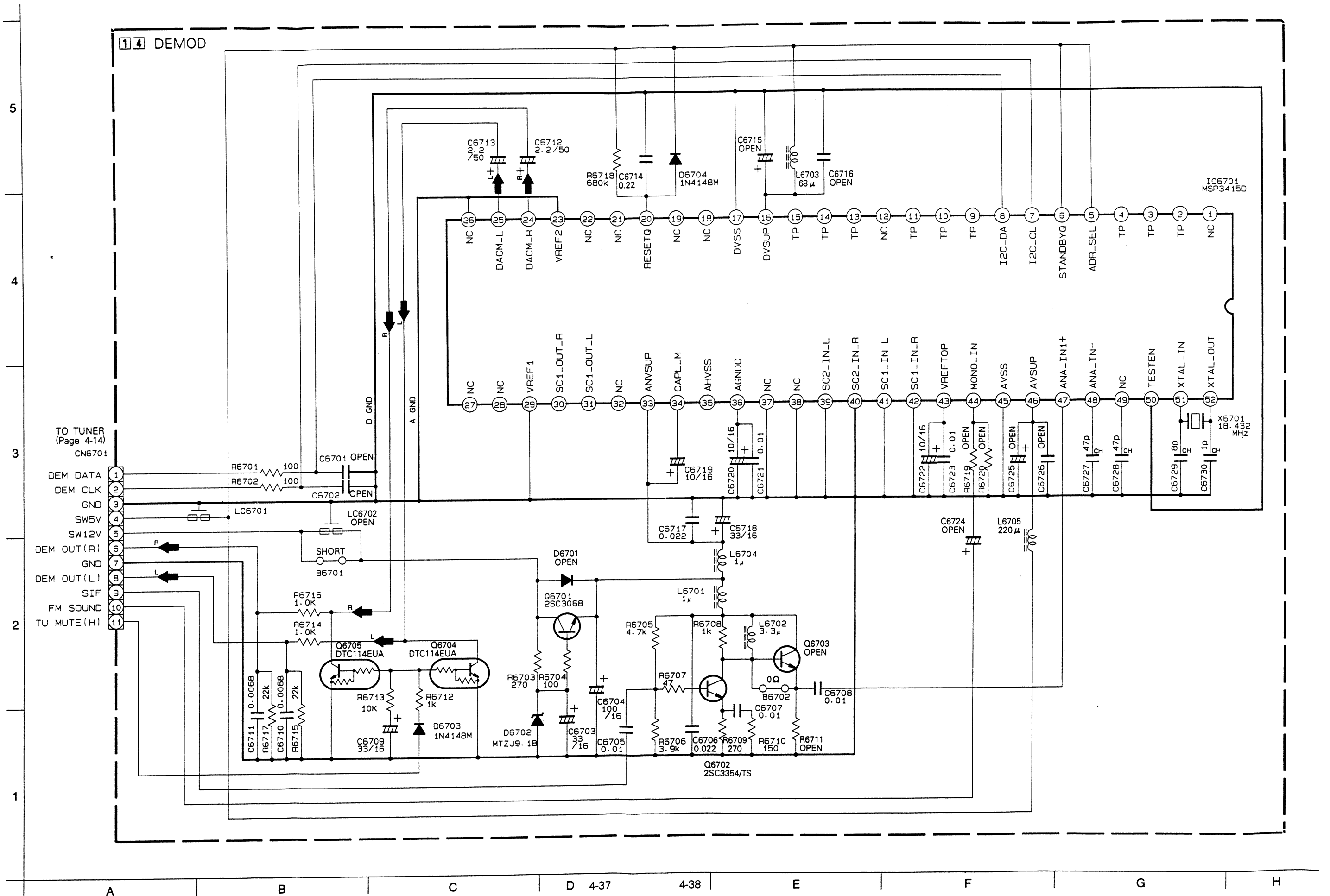
4.15 TERMINAL CIRCUIT BOARD AND WAVEFORMS



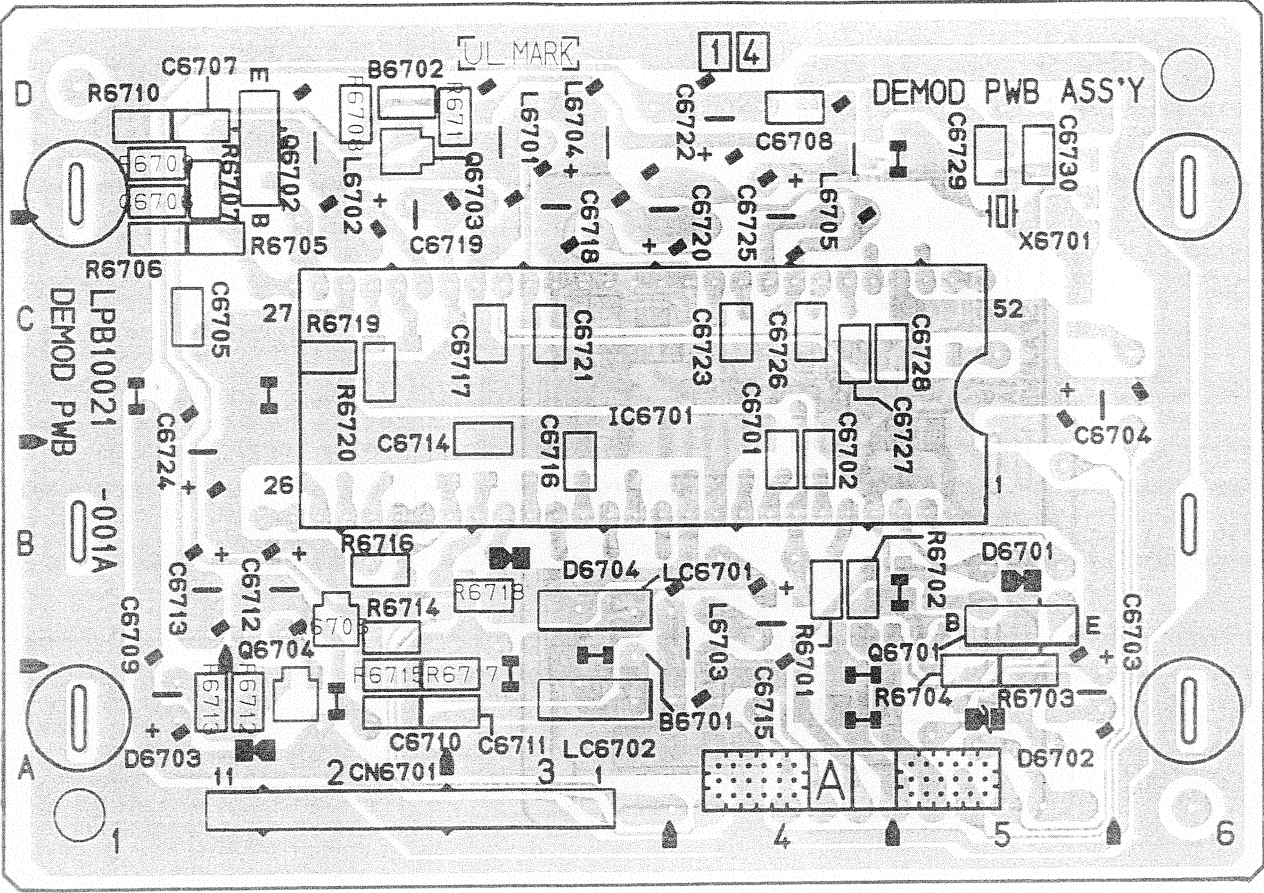
COMPONENT PARTS LOCATION GUIDE <TERMINAL>

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	
CAPACITOR																
C201	B C 14B	C7104	B C 5E	C7151	A D 11E	IC7131	A D 9B	L7133	A D 8A	R254	B C 13B	R7137	B C 3B			
C202	B C 14B	C7105	B C 5C	C7152	A D 11E	IC7132	B C 3B	L7134	A D 10B	R255	B C 13B	R7138	B C 3B			
C203	B C 14B	C7106	B C 5D	C7153	B C 12E	IC7191	B C 15D	L7135	A D 9B	R256	B C 13B	R7139	B C 2B			
C204	B C 14B	C7107	B C 5C	C7154	A D 11E	JACK					R257	B C 14C	R7140	B C 3A		
C205	B C 13B	C7108	B C 5C	C7155	B C 11E	J7101	A D 6D	L7191	A D 15E	R258	B C 13B	R7141	B C 3A			
C206	B C 13B	C7109	B C 5C	C7157	B C 16D	J7102	A D 6B	L7192	A D 15E	R283	B C 13B	R7142	B C 9E			
C207	B C 13B	C7110	B C 5C	C7158	B C 16D	J7103	A D 2D	L7193	A D 16E	R284	B C 13B	R7143	B C 9D			
C208	B C 12C	C7111	B C 5C	C7159	B C 15E	J7104	A D 1D	L7194	A D 16E	R286	B C 13B	R7144	B C 9D			
C209	B C 15B	C7112	B C 5C	C7191	A D 15E	J7105	A D 1C	TRANSISTOR					R287	B C 15C	R7145	B C 9E
C210	B C 14C	C7113	B C 5B	C7193	B C 13E	J7106	A D 13D	R288		R288	B C 14C	R7146	B C 9E			
C211	B C 14C	C7114	B C 5B	C7194	B C 14D	J7152	A D 12D	R289		R289	B C 13C	R7147	B C 11B			
C212	B C 14B	C7115	B C 5A	C7195	A D 15D	COIL					R290	B C 13C	R7148	B C 10A		
C213	B C 15C	C7116	B C 5B	C7196	A D 16C	L202	A D 14A	R291		R291	B C 15C	R7103	B C 10B			
C215	B C 15B	C7118	B C 7A	C7197	B C 16C	L204	A D 15A	R283		R283	B C 14C	R7104	B C 12D			
C219	B C 13B	C7119	B C 2D	C7198	B C 15E	L205	A D 13C	Q251	B C 15C	Q252	B C 15C	R7102	B C 11C			
C221	B C 13C	C7120	B C 1D	C7199	B C 15E	L206	A D 12C	Q253	B C 15C	Q254	B C 15C	R7103	B C 10B			
C225	B C 13B	C7121	B C 2D	CONNECTOR					Q255	B C 15C	Q256	B C 15C	R7104	B C 12D		
C252	B C 12B	C7122	B C 2D	CN7101	A D 8A	L251	A D 12B	Q257	B C 15C	Q258	B C 15C	R7105	B C 12D			
C253	B C 13B	C7131	B C 9E	CN7102	A D 11A	L252	A D 13C	Q259	B C 15C	Q260	B C 15C	R7106	B C 12D			
C254	B C 12B	C7132	B C 10B	CN7103	A D 11A	L253	A D 14C	Q261	B C 15C	Q262	B C 15C	R7107	B C 12D			
C255	B C 13B	C7133	B C 9B	CN7151	A D 13E	L254	A D 14C	Q263	B C 15C	Q264	B C 15C	R7108	B C 12D			
C256	B C 12B	C7134	B C 9B	CN7191	A D 3E	L7101	A D 5E	Q265	B C 15C	Q266	B C 15C	R7109	B C 12E			
C257	B C 15C	C7135	B C 8B	DIODE					Q267	B C 15C	Q268	B C 15C	R7110	B C 12E		
C258	B C 13C	C7136	B C 9B	D201	A D 13A	L7102	A D 6D	Q269	B C 15C	Q270	B C 15C	R7111	B C 12E			
C259	B C 14C	C7137	B C 9A	D202	A D 13A	L7103	A D 5D	Q271	B C 15C	Q272	B C 15C	R7112	B C 12E			
C281	B C 15A	C7138	B C 9B	D203	A D 13A	L7104	A D 5D	Q273	B C 15C	Q274	B C 15C	R7113	B C 12E			
C282	B C 13B	C7139	B C 8B	D251	A D 11B	L7105	A D 5D	Q275	B C 15C	Q276	B C 15C	R7114	B C 12E			
C283	B C 12C	C7140	B C 10B	D7131	A D 10E	L7106	A D 5C	Q277	B C 15C	Q278	B C 15C	R7115	B C 12E			
C284	B C 14C	C7141	B C 9A	D7132	A D 11C	L7107	A D 6C	Q279	B C 15C	Q280	B C 15C	R7116	B C 12E			
C285	B C 15B	C7142	B C 3B	D7133	A D 11C	L7108	A D 5C	Q281	B C 15C	Q282	B C 15C	R7117	B C 12E			
C287	B C 14C	C7143	B C 3C	D7191	A D 16D	L7109	A D 5B	Q283	B C 15C	Q284	B C 15C	R7118	B C 12E			
C288	B C 15C	C7144	B C 3A	D7192	A D 16D	L7110	A D 5B	Q285	B C 15C	Q286	B C 15C	R7119	B C 12E			
C7101	5D	C7145	B C 2B	IC					Q287	B C 15C	Q288	B C 15C	R7120	B C 12E		
C7102	B C 5D	C7146	B C 3B	IC201	A D 14B	L7111	A D 2D	Q289	B C 15C	Q290	B C 15C	R7121	B C 12E			
C7103	B C 5E	C7147	B C 3B			L7112	A D 2C	Q291	B C 15C	Q292	B C 15C	R7122	B C 12E			
		C7148	B C 10E			L7113	A D 2C	Q293	B C 15C	Q294	B C 15C	R7123	B C 12E			
						L7131	A D 9B	Q295	B C 15C	Q296	B C 15C	R7124	B C 12E			
						L7132	A D 9B	Q297	B C 15C	Q298	B C 15C	R7125	B C 12E			

4.16 DEMODULATOR SCHEMATIC DIAGRAM



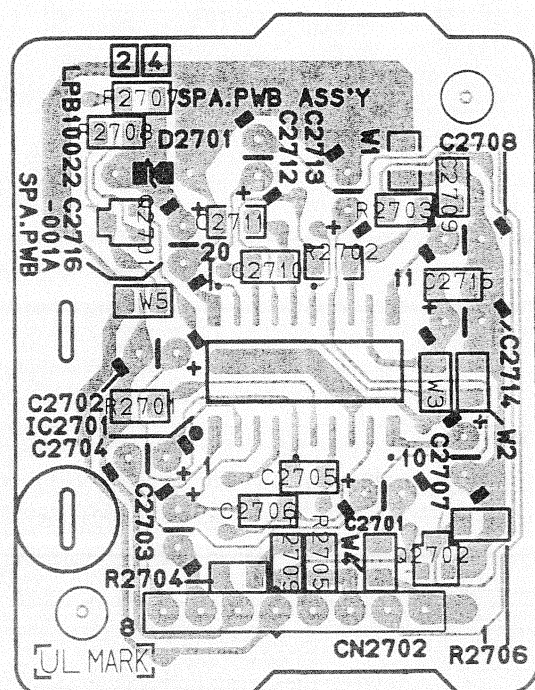
4.17 DEMODULATOR CIRCUIT BOARD



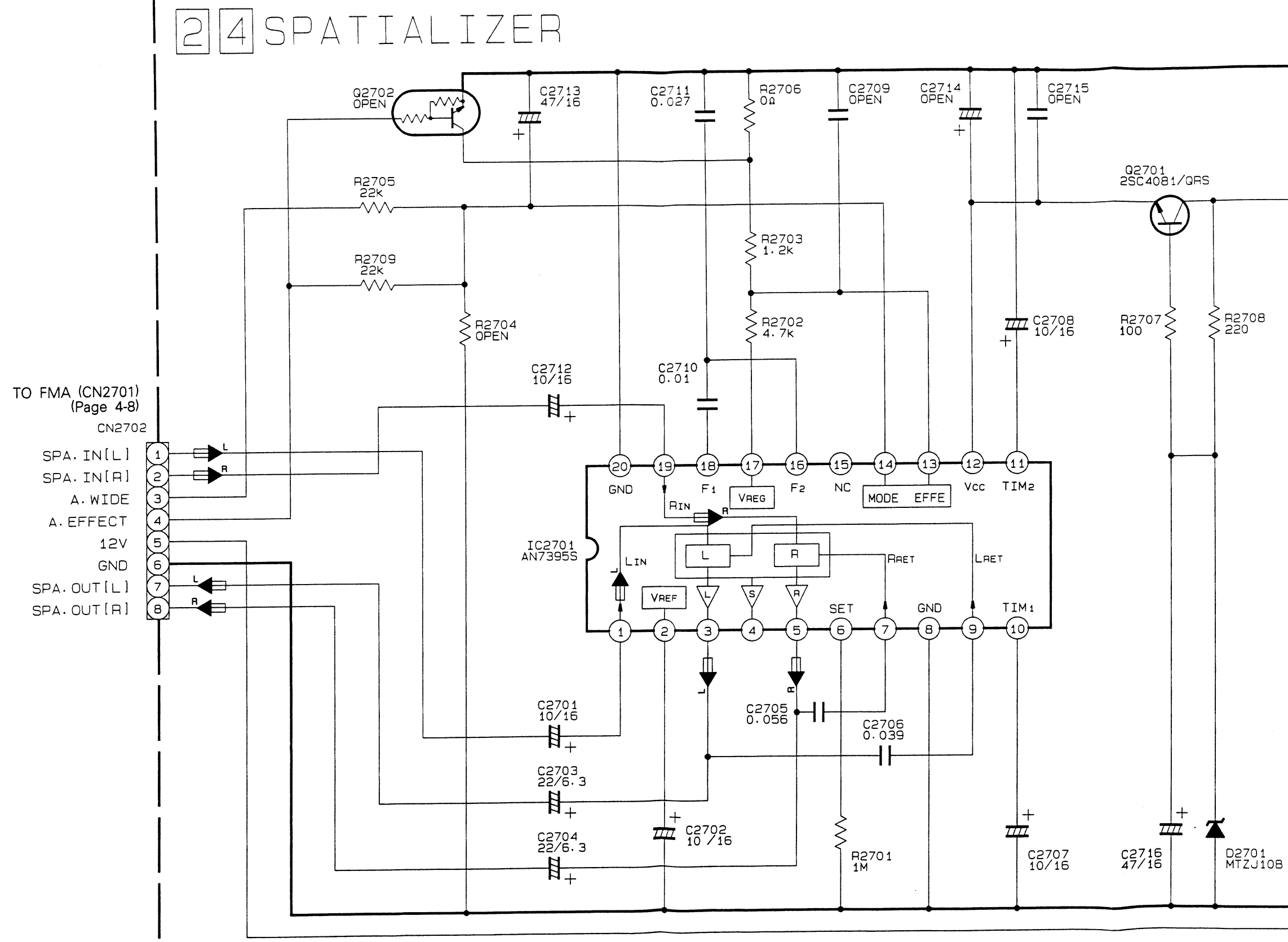
COMPONENT PARTS LOCATION GUIDE <DEMOMULATOR>

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C6701	B C 4B	C6718	A D 3D	D6701	A D 5B	Q6703	B C 2D	R6713	B C 1A
C6702	B C 4B	C6719	A D 2D	D6702	A D 5A	Q6704	B C 2A	R6714	B C 2B
C6703	A D 5A	C6720	A D 3C	D6703	A D 2A	Q6705	B C 2B	R6715	B C 2A
C6704	A D 5C	C6721	B C 3C	D6704	A D 3B	RESISTOR		R6716	B C 2B
C6705	B C 1C	C6722	A D 4D	IC		R6701	B C 4B	R6717	B C 3A
C6706	B C 1D	C6723	B C 4C	IC6701	A D 5B	R6702	B C 4B	R6718	B C 3B
C6707	B C 1D	C6724	A D 1B	COIL		R6703	B C 5A	R6719	B C 2C
C6708	B C 4D	C6725	A D 4D	L6701	A D 3D	R6704	B C 5A	R6720	B C 2C
C6709	A D 1A	C6726	B C 4C	L6702	A D 2D	R6705	B C 1C	OTHERS	
C6710	B C 2A	C6727	B C 4C	L6703	A D 4A	R6706	B C 1C	LC6701	A D 3B
C6711	B C 3A	C6728	B C 5C	L6704	A D 3D	R6707	B C 1D	LC6702	A D 3A
C6712	A D 2B	C6729	B C 5D	L6705	A D 4D	R6708	B C 2D	X6701	A D 5D
C6713	A D 1B	C6730	B C 5D	TRANSISTOR		R6709	B C 1D		
C6714	B C 3C	CONNECTOR		Q6701	A D 5B	R6710	B C 1D		
C6715	A D 4B	CN6701	A D 3A			R6711	B C 3D		
C6716	B C 3B								

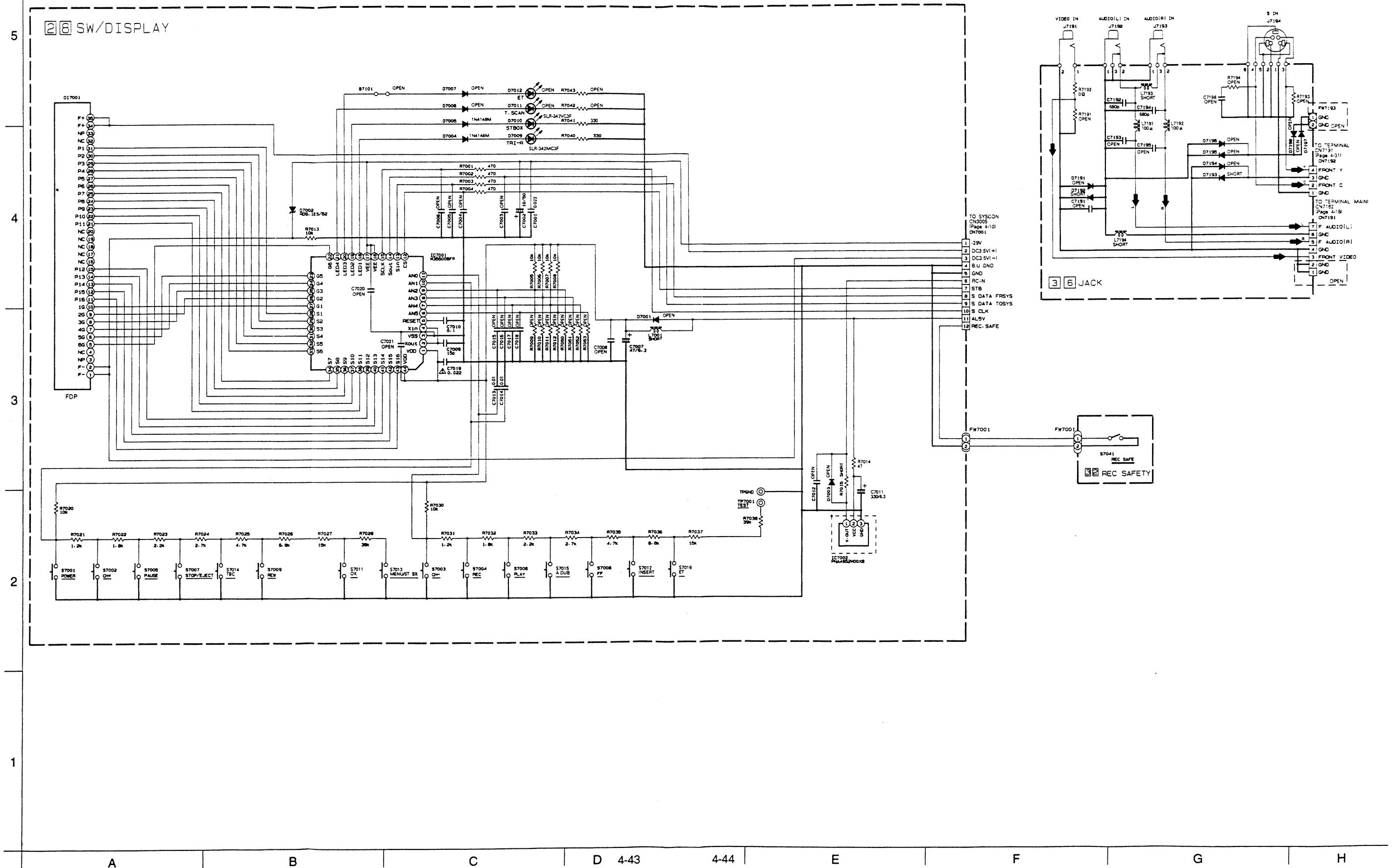
4.18 SPATIALIZER CIRCUIT BOARD



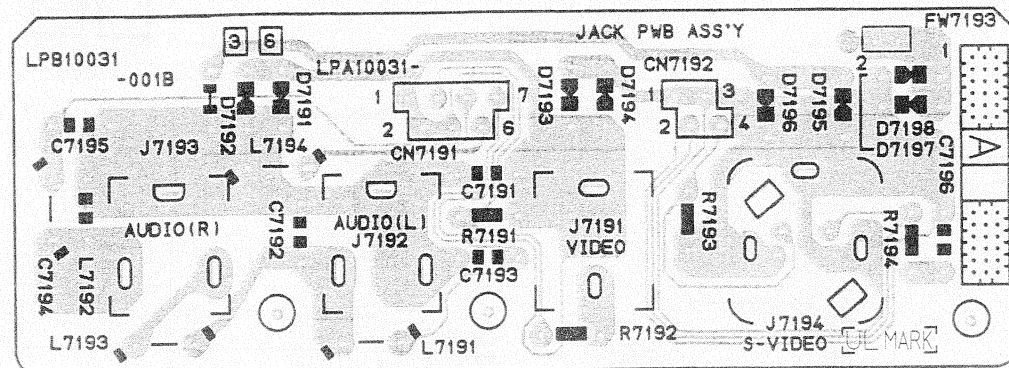
4.19 SPATIALIZER SCHEMATIC DIAGRAM



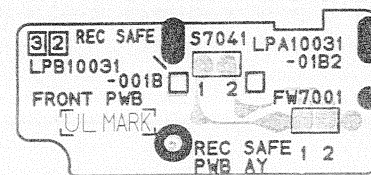
4.20 SW/DISPLAY, REC SAFETY AND JACK SCHEMATIC DIAGRAMS



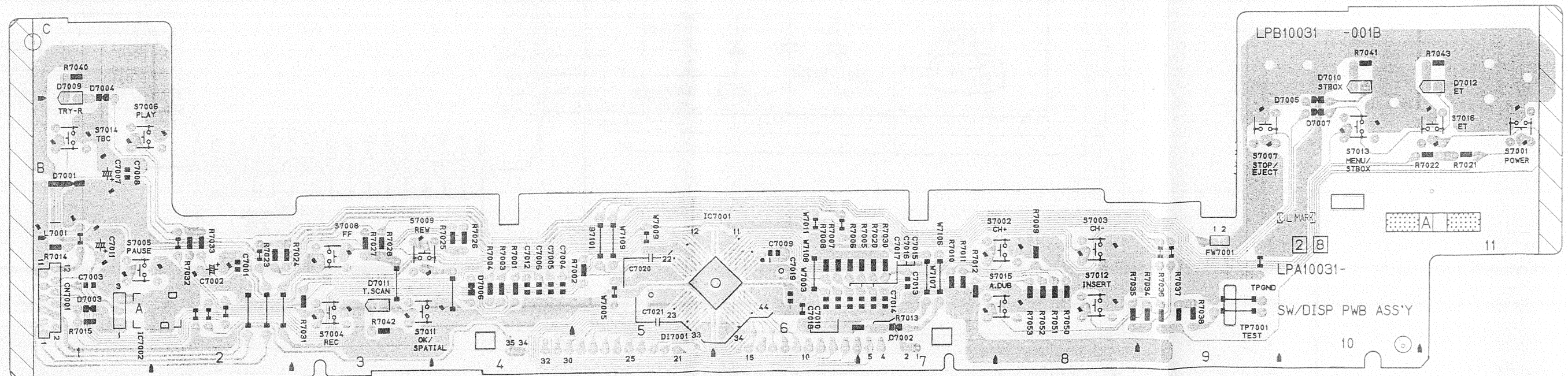
— JACK —



— REC SAFETY —

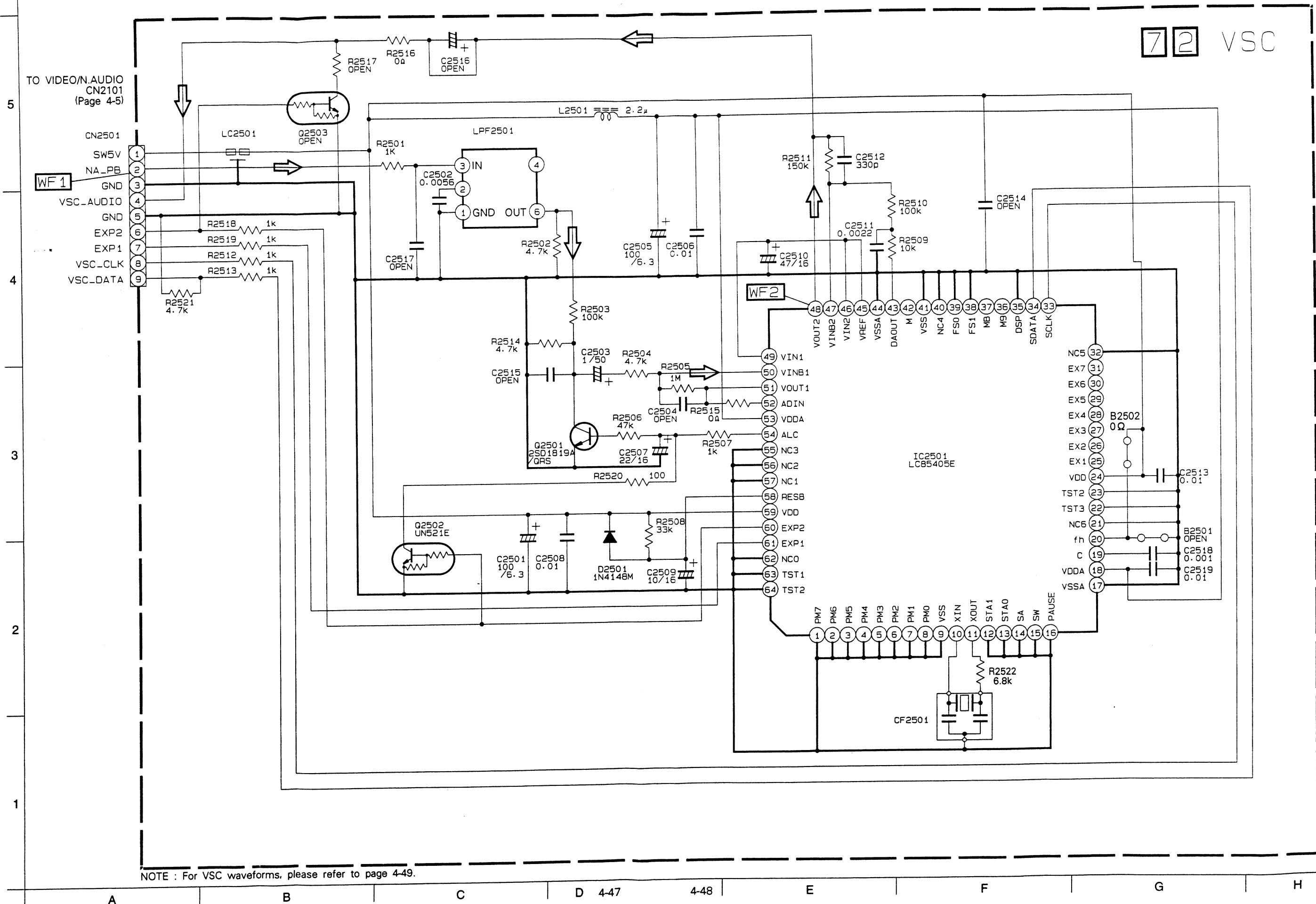


— SW/DISPLAY —

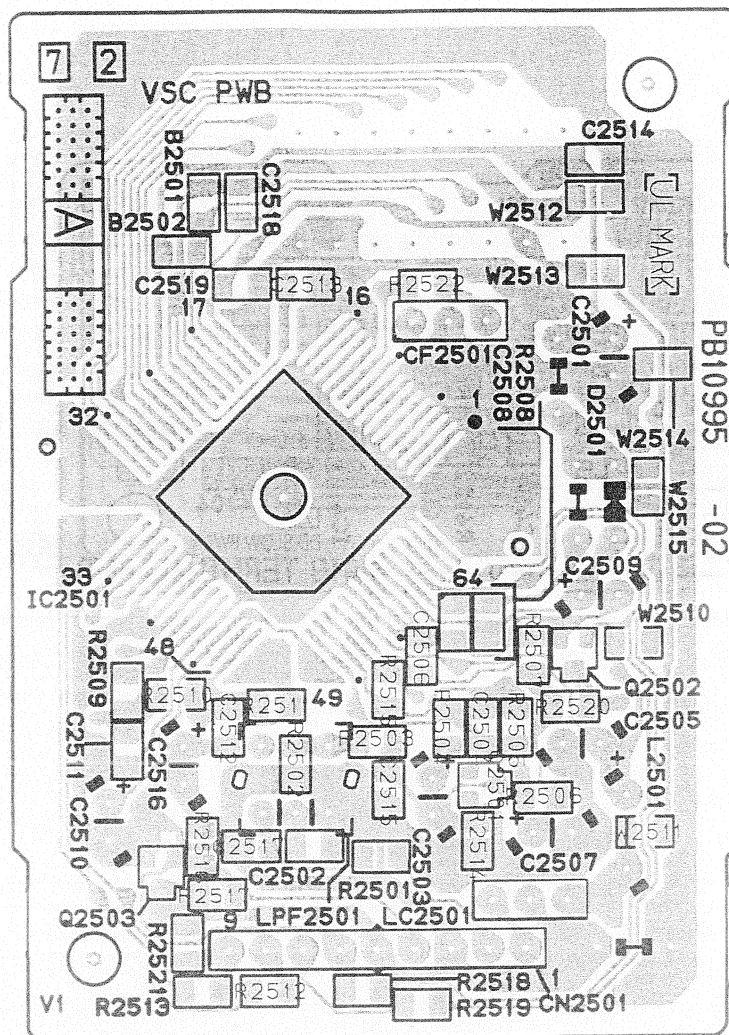


REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION			
CAPACITOR		C7019	A D 6A	IC		R7013	A D 7A	R7038	A D 9A	S7011	A D 3A	
C7001	A D 2A	C7020	A D 5A	IC7001	B C 6A	R7014	A D 1A	R7040	A D 1C	S7012	A D 8A	
C7002	A D 2A	C7021	A D 6A	IC7002	A D 2A	R7015	A D 1A	R7041	A D 10C	S7013	A D 10B	
C7003	A D 1A	CONNECTOR		COIL		R7020	A D 7A	R7042	A D 3A	S7014	A D 1B	
C7004	A D 4A	CN7001	A D 1A	L7001		A D 11B	R7021	A D 11B	R7043	A D 11C	S7015	A D 8A
C7005	A D 4A	DIODE		RESISTOR		R7022	A D 11B	R7050	A D 8A	S7016	A D 11B	
C7006	A D 4A	D7001	A D 1B	R7001	A D 4A	R7023	A D 2A	R7051	A D 8A	S7041	A D 9B	
C7007	A D 1B	D7002	A D 7A	R7002	A D 5A	R7024	A D 2A	R7052	A D 8A	OTHER		
C7008	A D 1B	D7003	A D 1A	R7003	A D 4A	R7025	A D 4B	R7053	A D 8A	DI7001	A D 6A	
C7009	A D 6A	D7004	A D 1C	R7004	A D 4A	R7026	A D 4A	SWITCH		FW7001	A D 9A	
C7010	A D 6A	D7005	A D 10B	R7005	A D 7A	R7027	A D 3B	S7001	A D 11B	FW7001	A D 9B	
C7011	A D 1A	D7006	A D 4A	R7006	A D 6A	R7028	A D 3A	S7002	A D 8A	TP7001	A D 9A	
C7012	A D 4A	D7007	A D 10B	R7007	A D 6A	R7030	A D 7A	S7003	A D 3A	TPGND	A D 9A	
C7013	A D 7A	D7008	A D 1C	R7008	A D 6A	R7031	A D 3A	S7004	A D 8A			
C7014	A D 7A	D7009	A D 10C	R7009	A D 8A	R7032	A D 2A	S7005	A D 1A			
C7015	A D 7A	D7010	A D 3A	R7010	A D 7A	R7033	A D 2B	S7006	A D 1B			
C7016	A D 7A	D7011	A D 11C	R7011	A D 7A	R7034	A D 9A	S7007	A D 9B			
C7017	A D 6A			R7012	A D 7A	R7035	A D 8A	S7008	A D 3A			
C7018	A D 6A					R7036	A D 9A	S7009	A D 3A			
						R7037	A D 9A					

4.22 VSC SCHEMATIC DIAGRAM

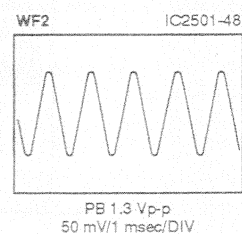
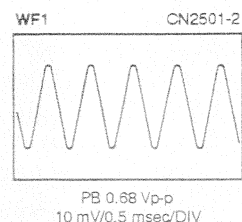


4.23 VSC CIRCUIT BOARD AND WAVEFORMS

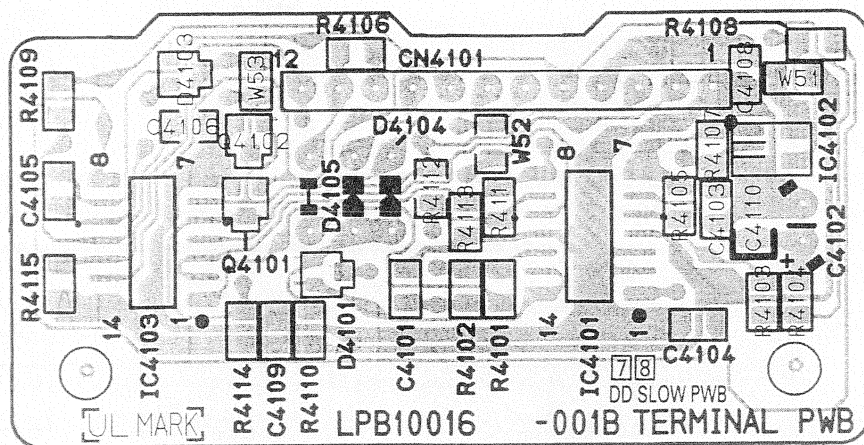


— WAVEFORMS —

— VSC —

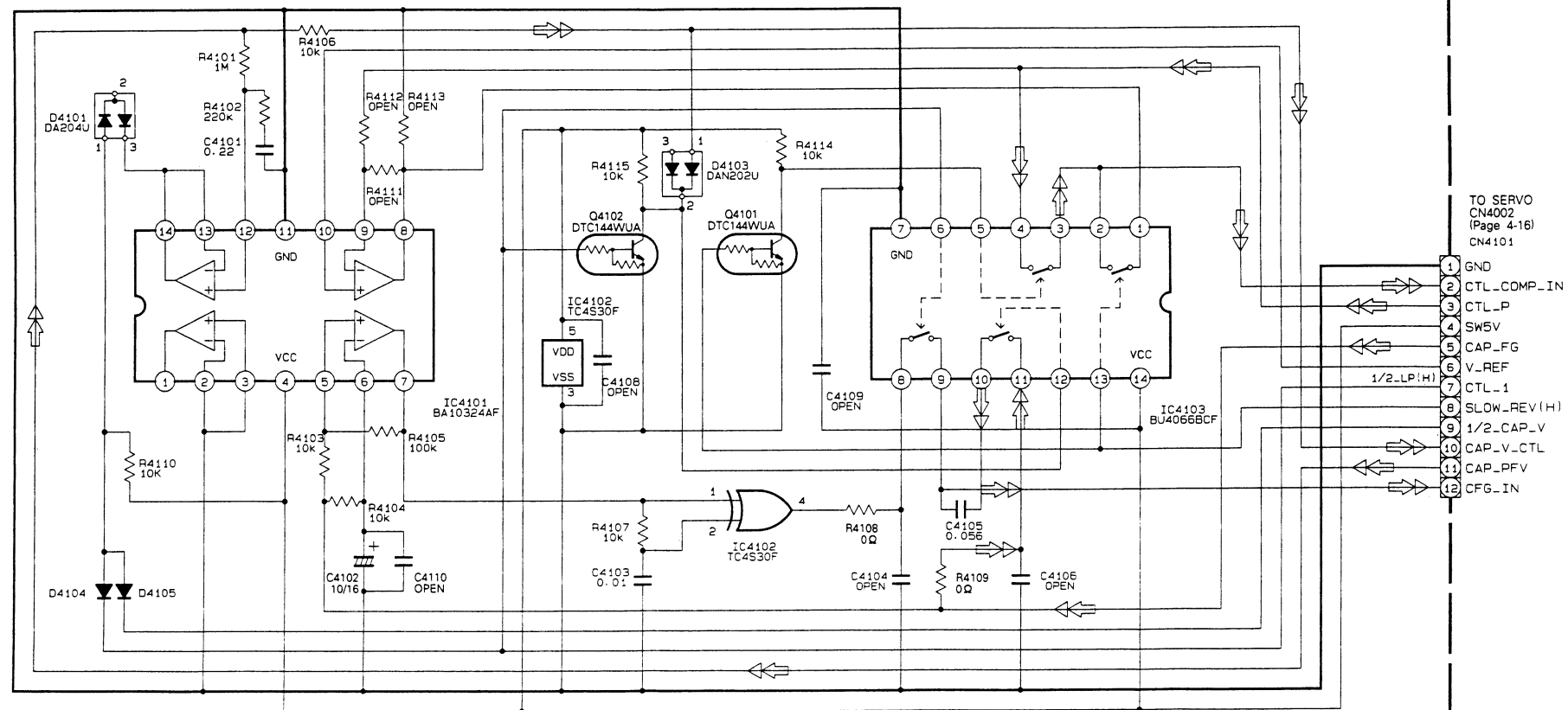


4.24 DD SLOW CIRCUIT BOARD



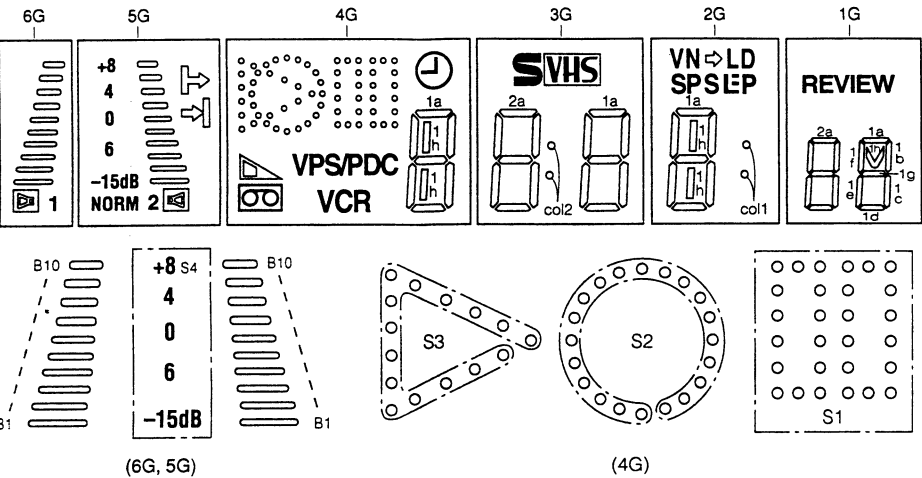
4.25 DD SLOW SCHEMATIC DIAGRAM

78 DD SLOW



4.26 FDP GRID ASSIGNMENT AND ANODE CONNECTION

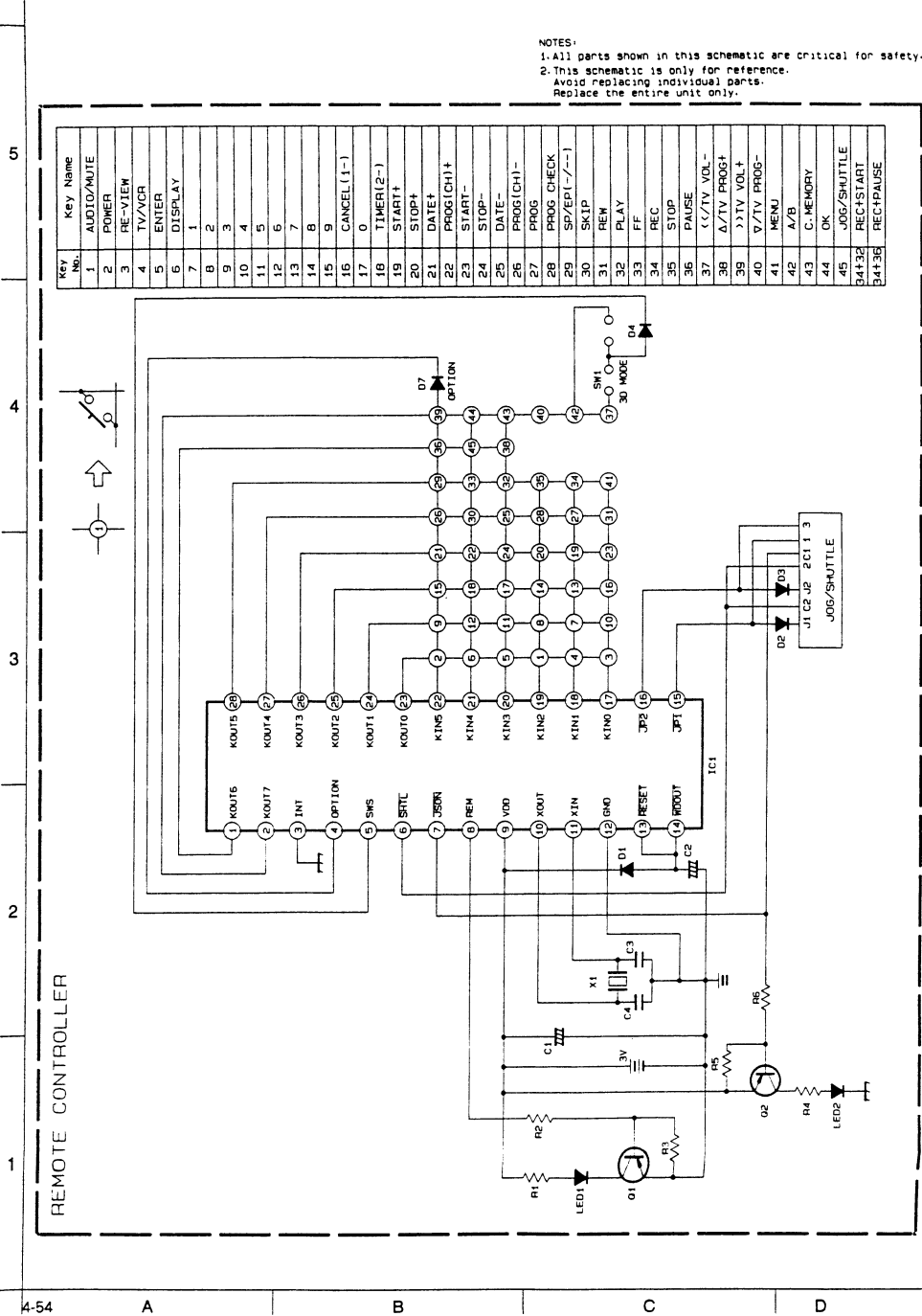
GRID ASSIGNMENT



ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
P 1	—	→	S2	1a	1a	1a
P 2	—	←	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	⌚	1c	1c	1c
P 6	Ⓜ	Ⓜ	Ⓜ	1e	1e	1e
P 7	B10	B10	Ⓜ	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	↔	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S _(SEP)	2e
P15	B2	B2	1d	2d	= _(SEP)	2d
P16	B1	B1	1h	SVHS	LP _(SEP)	REVIEW

4.27 REMOTE CONTROL SCHEMATIC DIAGRAM



4.28 VOLTAGE CHARTS

<VIDEO/N.AUDIO>

MODE PIN NO.	REC	PLAY
IC1	2.5	2.5
1	2.5	2.4
2	0	0
3	0	0
4	2.2	2.2
5	0	0
6	0.3	0.5
7	2.4	2.4
8	2.4	2.4
9	2.4	2.4
10	2.4	2.4
11	2.4	2.4
12	5.0	5.0
13	1.8	1.6
14	1.8	1.5
15	2.6	1.9
16	1.5	0.7
17	2.0	2.0
18	2.2	2.2
19	3.0	3.0
20	2.7	2.7
21	2.3	2.3
22	2.3	2.3
23	3.0	3.0
24	2.0	2.0
25	1.4	1.4
26	2.0	2.0
27	0	0
28	5.0	5.0
29	1.1	1.1
30	3.2	3.2
31	2.7	2.7
32	0	0
33	0	0
34	0	0
35	3.0	3.0
36	5.0	5.0
37	0	0
38	5.0	5.0
39	3.1	3.1
40	5.0	5.0
41	5.0	5.0
42	1.9	1.9
43	5.0	5.0
44	2.5	2.5
45	0	0
46	2.0	2.0
47	0	0
48	0	0
49	0	0
50	0.4	0.4
51	1.3	1.3
52	1.3	1.3
53	3.0	3.0
54	1.9	1.9
55	2.0	2.0
56	2.2	2.8
57	0	0
58	3.0	3.0
59	3.4	3.4
60	2.1	2.1
61	4.9	4.9
62	4.6	4.6
63	4.6	4.6
64	0	0
65	1.7	1.7
66	5.0	5.0
67	4.9	4.9
68	0	0
69	2.7	2.7
70	2.8	2.8
71	2.1	2.1
72	2.2	2.1
73	1.6	1.6
74	2.7	1.0
75	2.1	2.1
76	2.5	2.5
77	4.7	4.6
78	2.7	2.7
79	4.3	2.1
80	-	0
81	-	0
82	1.2	1.2
83	2.5	2.5
84	0	0
85	0	0
86	2.4	2.4
87	2.1	2.1
88	2.1	2.1
89	2.4	2.4
90	5.0	5.0

MODE PIN NO.	REC	PLAY
91	0	0
92	0	0
93	0	0
94	0	0
95	2.8	2.8
96	5.0	5.0
97	0	0
98	5.0	5.0
99	0.6	0.6
100	2.5	2.5
IC2		
1	2.8	2.8
2	3.9	3.9
3	2.8	2.7
4	4.9	0
5	2.8	2.8
6	5.0	5.0
7	1.9	2.0
8	0	0
Q1		
E	4.2	4.2
B	3.6	3.6
Q2		
E	0	0
C	2.1	2.1
B	0	0
Q6		
E	2.7	2.7
C	0	0
B	2.0	2.0
Q13		
E	-	-
C	-	-
B	-	-
Q14		
E	-	-
C	-	-
B	-	-
Q15		
E	-	-
C	-	-
B	-	-
Q16		
E	5.1	5.1
C	5.0	0
B	0.1	5.1
Q17		
E	0	0
C	0	0
B	3.3	3.3
Q18		
E	3.2	0
C	0	1.9
B	0	0.1
Q38		
E	1.3	1.7
C	5.0	5.0
B	0.7	2.4
Q47		
E	4.9	4.9
C	2.2	2.1
B	3.0	2.9
Q48		
E	2.2	2.1
C	0	0
B	0.8	0.7
Q102		
E	-	-
C	-	-
B	-	-
Q152		
E	5.0	2.7
C	0	0
B	4.5	2.1
Q153		
E	2.1	2.1
C	5.0	5.0
B	2.7	2.7
Q40		
E	11.5	11.5
C	11.5	0.6
B	10.7	11.5
Q402		
E	0	0
C	0	11.5
B	4.9	0
Q403		
E	0	0
C	0	0.6
B	5.0	0

MODE PIN NO.	REC	PLAY
Q404		
E	7.6	0.6
C	0	0
B	7.1	0.6
Q405		
E	9.6	0.5
C	0	0
B	9.4	0.5
Q2001		
E	-11.9	0
C	0	0
B	-18.4	0.7
Q2002		
E	-11.9	0
C	0	0
B	-18.1	0.6
Q2003		
E	5.0	5.0
C	-18.2	5.0
B	4.9	0
Q2051		
E	0	0
C	8.0	0.3
B	0.4	0.2
Q2052		
E	11.4	11.5
C	11.2	3.5
B	10.7	11.4
Q2053		
E	0	0
C	0	3.5
B	4.9	0
Q2054		
E	11.2	3.5
C	11.0	0.2
B	10.4	3.5
Q2055		
E	0	0
C	0	2.5
B	4.5	0
Q2061		
E	0	0
C	7.3	0.2
B	0.2	0.2
Q2062		
E	10.7	0
C	10.6	0.3
B	0	0.3
Q2063		
E	0	0
C	0	0.3
B	5.0	0
Q2102		
E	0	0
C	0	0
B	5.0	5.0
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.4	2.2
6	2.4	2.2
7	2.1	2.2
8	2.1	2.2
9	4.2	0
10	4.1	0
11	4.1	0
12	0	0
13	0	0
CN101		
1	0	0
2	-	-
3	4.7	4.7
4	-	-
5	4.7	4.7
6	0	0
7	0	0
8	0	0
9	0.6	0.6
10	0	0
11	0	0
12	0	0
13	5.2	5.2
14	5.2	0.2
15	0	0
16	0	0
17	0.4	0.4
18	0	0
19	3.4	3.4
20	0	0

MODE PIN NO.	REC	PLAY
21	0.6	0.6
22	2.1	2.1
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
CN102		
1	1.5	1.1
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	1.4	1.1
8	2.3	2.1
9	0.8	1.8
10	4.3	4.3
11	2.4	2.4
12	3.3	3.3
13	0	0
14	0	0
15	2.3	2.3
16	0	0
17	4.7	4.7
18	4.6	4.6
19	4.2	5.2
20	5.2	5.2
21	2.4	2.4
22	0	0
23	1.7	1.7
24	0	0
25	0	0
26	2.6	2.6
27	2.2	2.2
28	0	0
29	0	0
30	0	0
CN2001		
1	0	0.1
2	0	0
3	0	0
4	0	0
5	0	0
6	1.7	2.5
7	1.9	2.5
CN2002		
1	0	0
2	0.1	0
CN2101		
1	5.1	5.1
2	0	0
3	0	0
4	2.6	2.6
5	0	0
6	0	0
7	4.9	4.9
8	0	0
9	0	0

<FMA>

MODE PIN NO.	REC	PLAY
IC2201		
1	1.9	2.0
2	0	0
3	2.5	2.5
4	0	0
5	0	0
6	2.5	2.5
7	0	0
8	2.5	2.5
9	1.4	1.4
10	0	0
11	2.5	2.4
12	2.5	2.5
13	2.5	2.4
14	2.5	2.0
15	0	0
16	4.6	4.6
17	4.6	4.6
18	0	2.6
19	0	0
20	0	1.6
21	2.0	2.0

MODE PIN NO.	REC	PLAY
22	0	0
23	0	0
24	2.0	2.0
25	2.5	2.3
26	2.5	2.4
27	2.5	2.5
28	0	0
29	1.4	1.4
30	2.6	2.5
31	5.0	5.0
32	0	0
33	2.5	2.5
34	0	0
35	0	0
36	1.9	2.0
37	2.5	2.5
38	2.5	2.5
39	9.5	9.5
40	0	0
41	4.4	4.4
42	0	0
43	0	0
44	0	0
45	4.3	4.3
46	4.4	4.4
47	0	0
48	1.1	1.2
IC2251		
1	0	-
2	4.2	0
3	0.5	0.6
4	0	0
5	0.5	0.6
6	4.2	0
7	4.1	0
8	2.5	2.5
9	0.6	0
10	4.9	5.0
11	3.0	0.9
12	0	0
13	1.8	1.0
14	1.9	1.8
15	0.2	0
16	4.4	0.8
Q2251		
E	4.4	0
C	4.4	0.8
B	0.5	0.3
Q2253		
E	2.5	0
C	0.5	0
B	0	4.6
Q2711		
E	0	0
C	0	0
B	-1.8	-2.0
Q2712		
E	0	0
C	0	0
B	-1.8	-2.0
Q2713		
E	5.7	5.8
C	-1.9	-2.0
B	5.7	5.8
Q2714		
E	0	0
C	5.7	5.8
B	0	0
CN2701		
1	0	0
2	0	0
3	0	0
4	0	0
5	11.4	11.5
6	0	0
7	0	0
8	0	0

<SYSCON>

MODE PIN NO.	REC	PLAY
IC3001		
1	1.1	1.2
2	0	0
3	5.0	5.0
4	5.0	5.0
5	0	0
6	0	0
7	1.5	1.5
8	1.2	1.3
9	0	0
10	-	-
11	-	-
12	5.1	5.1
13	0	0
14	0	0
15	0	4.9
16	5.0	5.0
17	0	0
18	0	0
19	4.2	4.2
20	0	0
21	0	0
22	5.1	5.0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	-	0.7
29	-	-
30	4.3	-
31	0.4	0.3
32	0.3	0.3
33	0.9	0.9
34	0.2	0.3

MODE PIN NO.	REC	PLAY
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	4.1	4.1

<TERMINAL MAIN>

MODE PIN NO.	REC	PLAY
CN7104		
1	0	0
2	0	0
3	0	0
4	5.1	5.1
5	2.3	2.2
6	4.2	4.2
7	2.7	2.7
8	5.0	5.1
9	1.0	1.0
10	1.6	1.6
11	4.7	4.7
CN7105		
1	0	0
2	1.8	1.8
3	11.5	11.5
4	0	0
5	1.1	1.1
6	0	0
7	0	0
8	0	0
9	11.3	11.3
10	-	-
11	-	-
12	0	0
13	0	5.1
CN7106		
1	5.0	5.0
2	0.2	0.2
3	-10.9	-10.9
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
CN7162		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	-	-
7	-	-

<3D SVHS/VIDEO/Y/C SEPI>

MODE PIN NO.	REC	PLAY
IC1001		
1	2.9	2.9
2	2.9	4.1
3	2.3	2.3
4	2.3	2.3
5	2.7	2.9
6	2.8	2.8
7	2.8	2.3
8	2.3	3.3
9	2.4	2.3
10	2.7	2.7
11	2.7	2.8
12	2.7	2.8
13	4.6	4.6
14	4.6	4.6
15	2.6	2.6
16	2.9	2.8
17	0	0
18	3.2	2.1
19	0	0
20	0	0
21	2.3	2.3
22	2.7	2.8
23	2.3	2.4
24	0	0

MODE PIN NO.	REC	PLAY
25	3.5	3.5
26	2.1	2.1
27	2.8	2.8
28	2.8	2.8
29	2.8	2.8
30	0	0
31	2.8	2.8
32	0	0
33	2.8	2.8
34	5.1	5.1
35	2.8	2.8
36	1.9	1.9
37	3.1	3.1
38	2.9	2.9
39	2.4	2.4
40	2.7	2.7
41	2.9	2.9
42	2.8	2.8
43	3.1	3.1
44	2.3	2.1
45	0	0
46	2.8	2.8
47	1.9	1.1
48	2.8	2.8
49	5.1	5.1
50	2.8	2.8
51	5.1	5.1
52	2.8	2.8
53	2.3	2.0
54	2.6	3.5
55	0	0
56	2.3	2.3
IC1002		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
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100	-	-

MODE PIN NO.	REC	PLAY
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MODE PIN NO.	REC	PLAY
IC1402		
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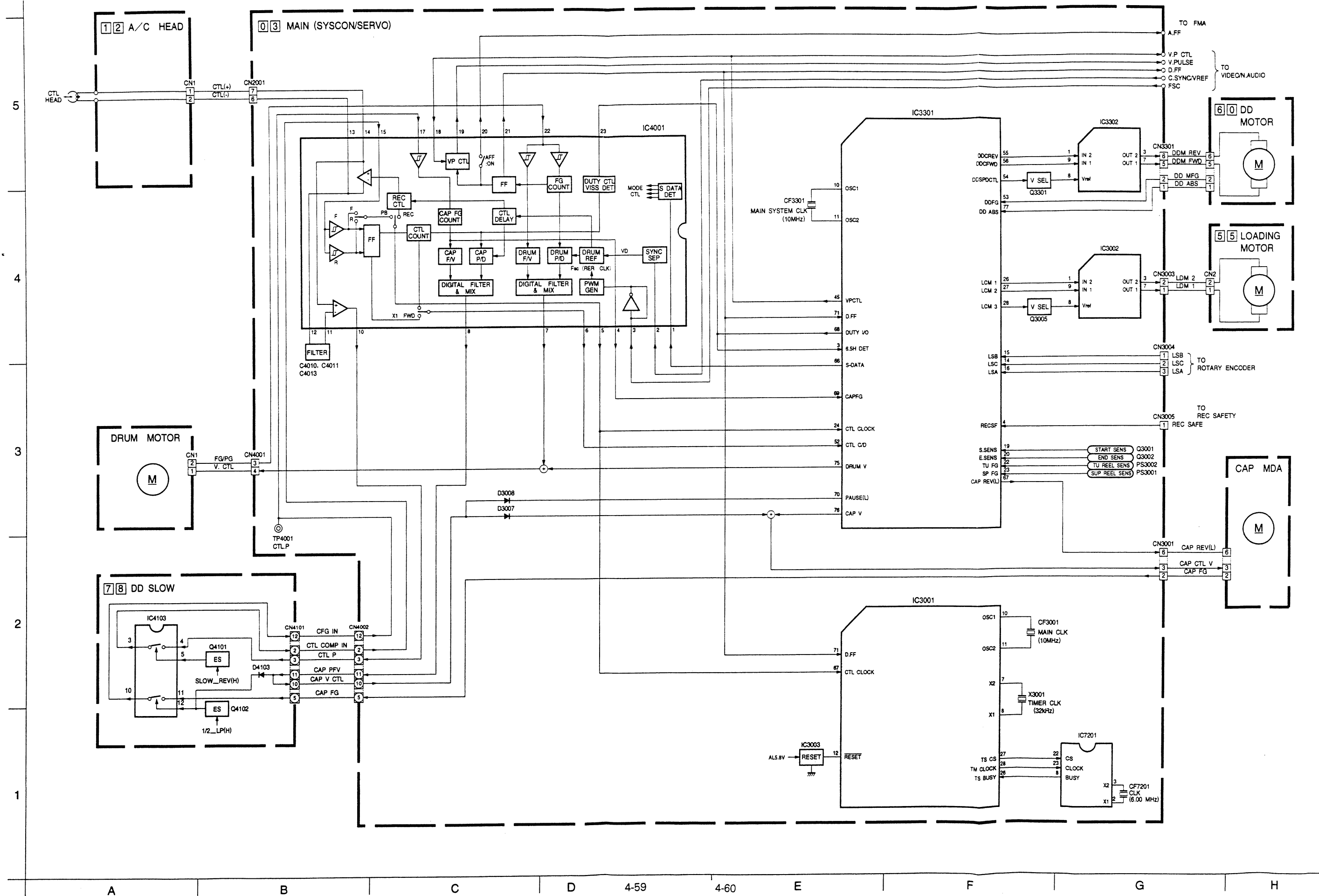
MODE PIN NO.	REC	PLAY
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Q1405	-	-
E	-	-
C	-	-
Q1406	-	-
E	-	-
C	-	-
Q1407	-	-
E	-	-
C	-	-
Q1408	-	-
E	-	-
C	-	-
Q1409	-	-
E	-	-
C	-	-
Q1410	-	-
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Q1411	-	-
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Q1412	-	-
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Q1413	-	-
E	-	-
C	-	-
Q1414	-	-
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C	-	-
Q1416	-	-
E	-	-
C	-	-
Q1417	-	-
E	-	-
C	-	-
Q1418	-	-
E	-	-
C	-	-
CN1003	-	-
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3	2.3	2.3
4	0	0
5	5.7	5.8
6	0	0
7	5.7	5.7

<DEMODULATOR>

MODE PIN NO.	REC	PLAY
IC6701		
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5	-	-
6	-	-
7	-	-
8	-	-
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15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-

MODE PIN NO.	REC	PLAY
23	0	0
24	0	0
25	0	0
26	0	0
27	-	-
28	-	-
29	0	0
30	-	-
31	-	-
32	-	-
33	8.3	8.3
34	7.4	7.4
35	-	-
36	3.7	3.7
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	2.6	2.6
44	3.2	3.2
45	0	0
46	5.1	5.0
47	1.5	1.5
48	1.5	1.5
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50	0	0
51	2.3	2.3
52	2.0	2.0
Q6701		

4.29 SYSTEM CONTROL/SERVO BLOCK DIAGRAM



5



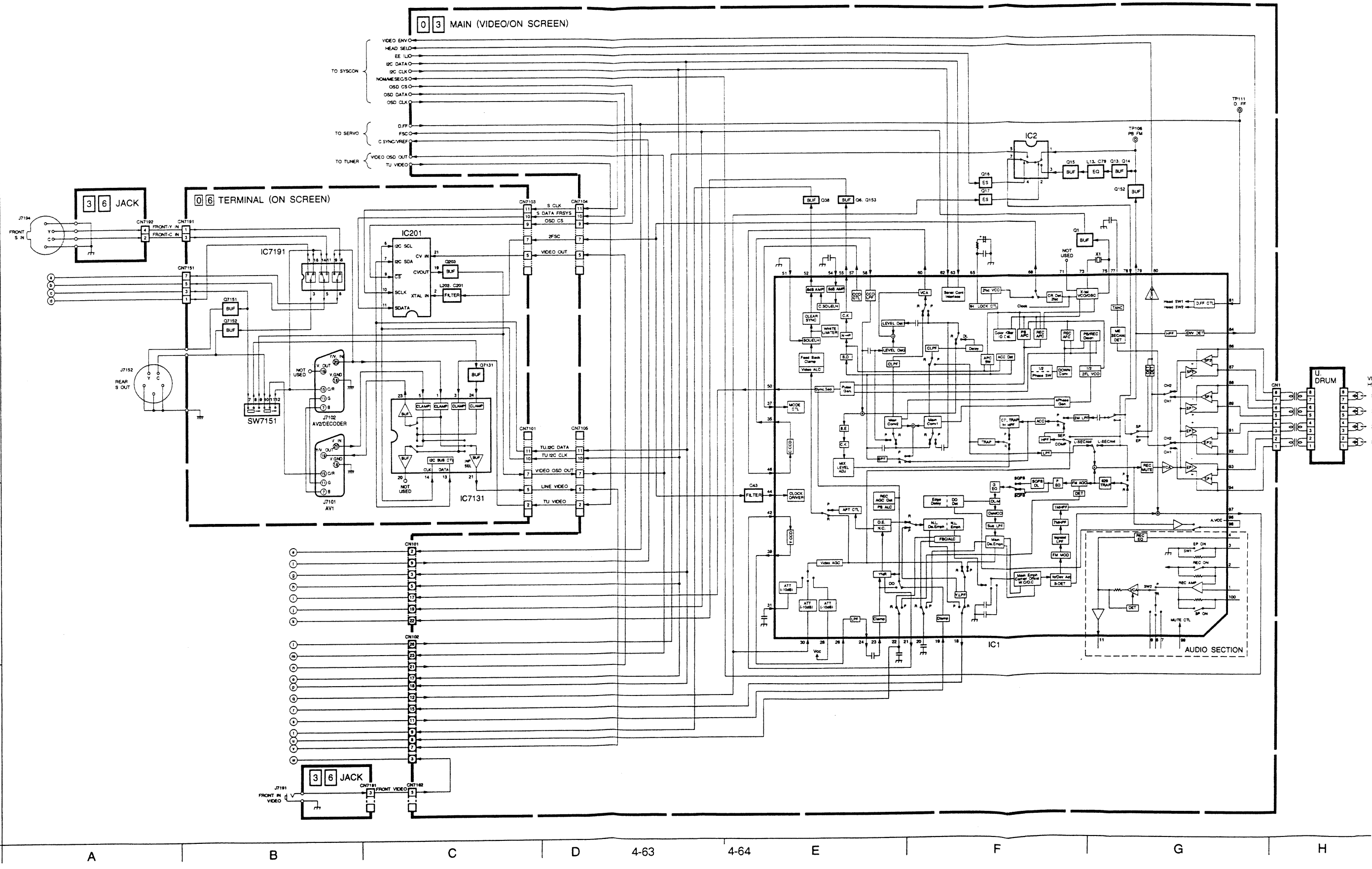
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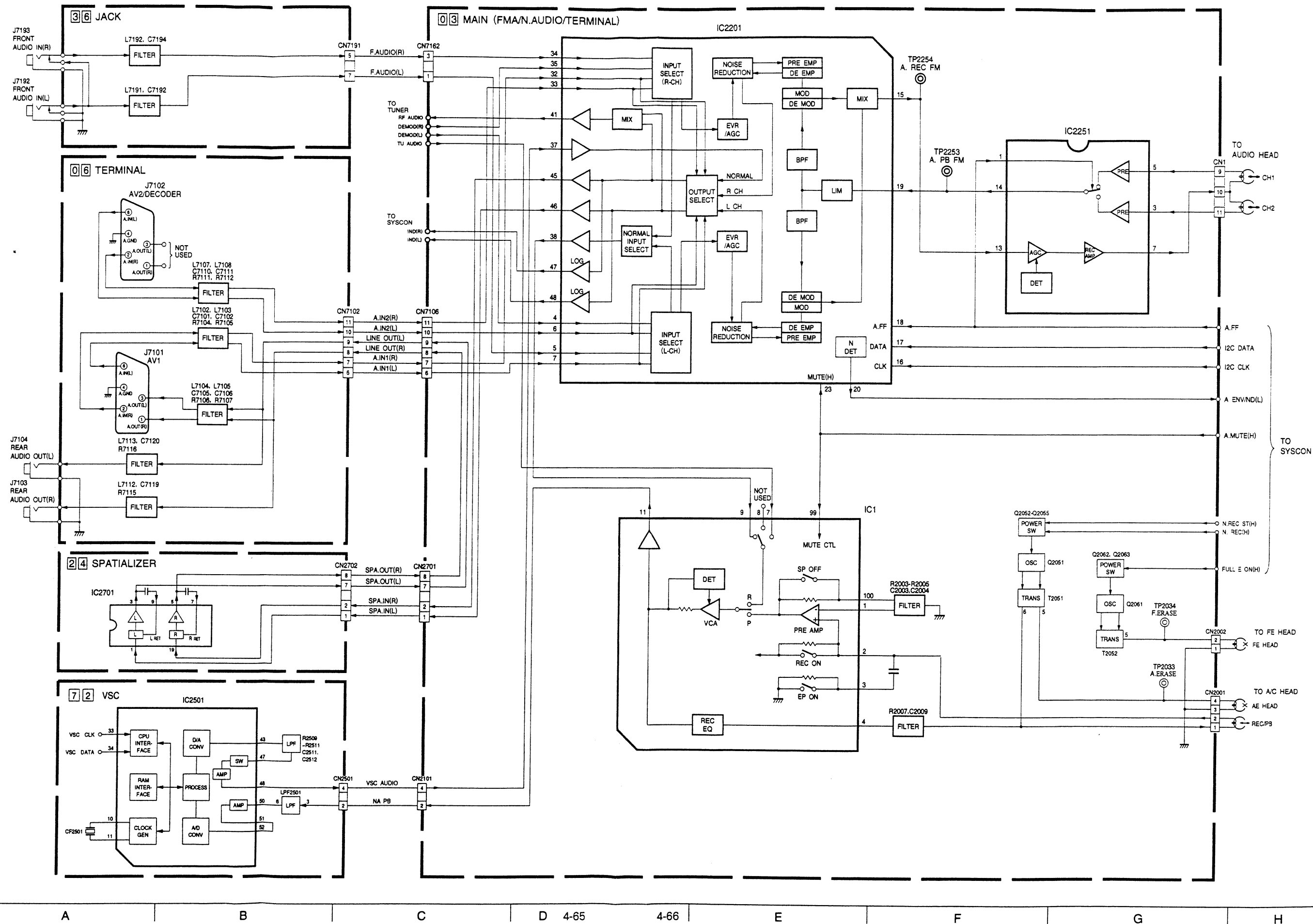
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1



4.31 AUDIO BLOCK DIAGRAM



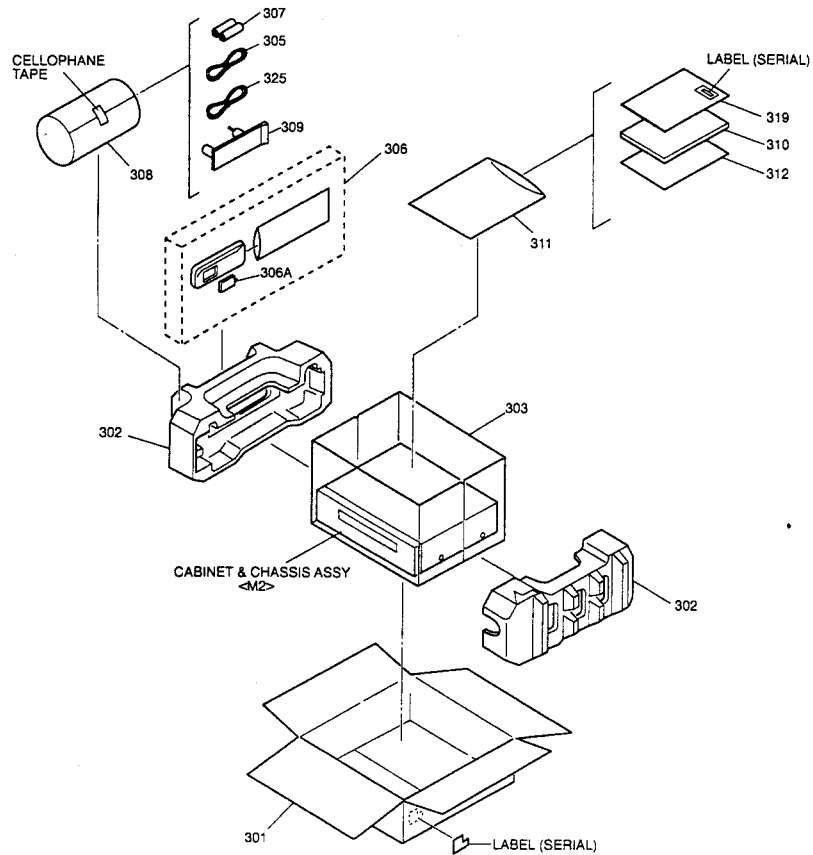
SECTION 5 PARTS LIST

SAFETY PRECAUTION

Parts identified by the $\triangle$ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.

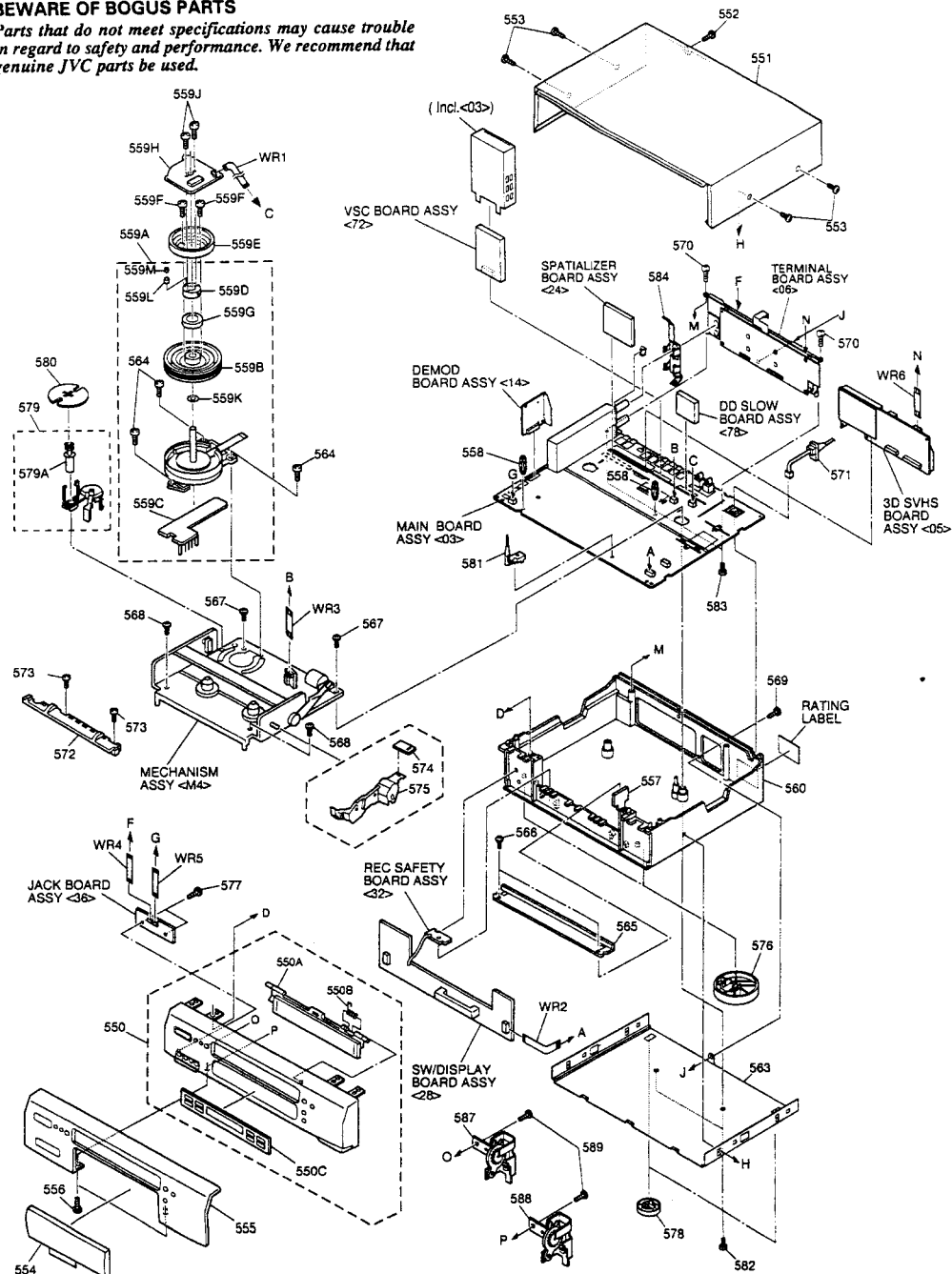


REF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION

PACKING AND ACCESSORY ASSEMBLY <M1>						
301	LP30450-007A	PACKING CASE		306A	LP40254-005A	COVER(BATTERY)
302	LP30430-001A	CUSHION ASSY		307	-	BATTERY,X2 (R6P TYPE)
303	PQM30021-95	POLY BAG		308	QPC02202215P	POLY BAG
305	PEAC0300-02	RF CABLE		309	LP40164-002A	CAP,JACK(CONNECTOR COVER)
306	LP20465-003C	REMOTE CONTROLLER		$\triangle$ 310	LPT0054-001A	INST.BOOK(EN)
				311	QPC02503515P	POLY BAG
				312	ST-20066A	E.DISTR.LIST
				319	BT-54008-1	GUARANTEE CARD
				325	PEAC0358-120	S CABLE

BEWARE OF BOGUS PARTS

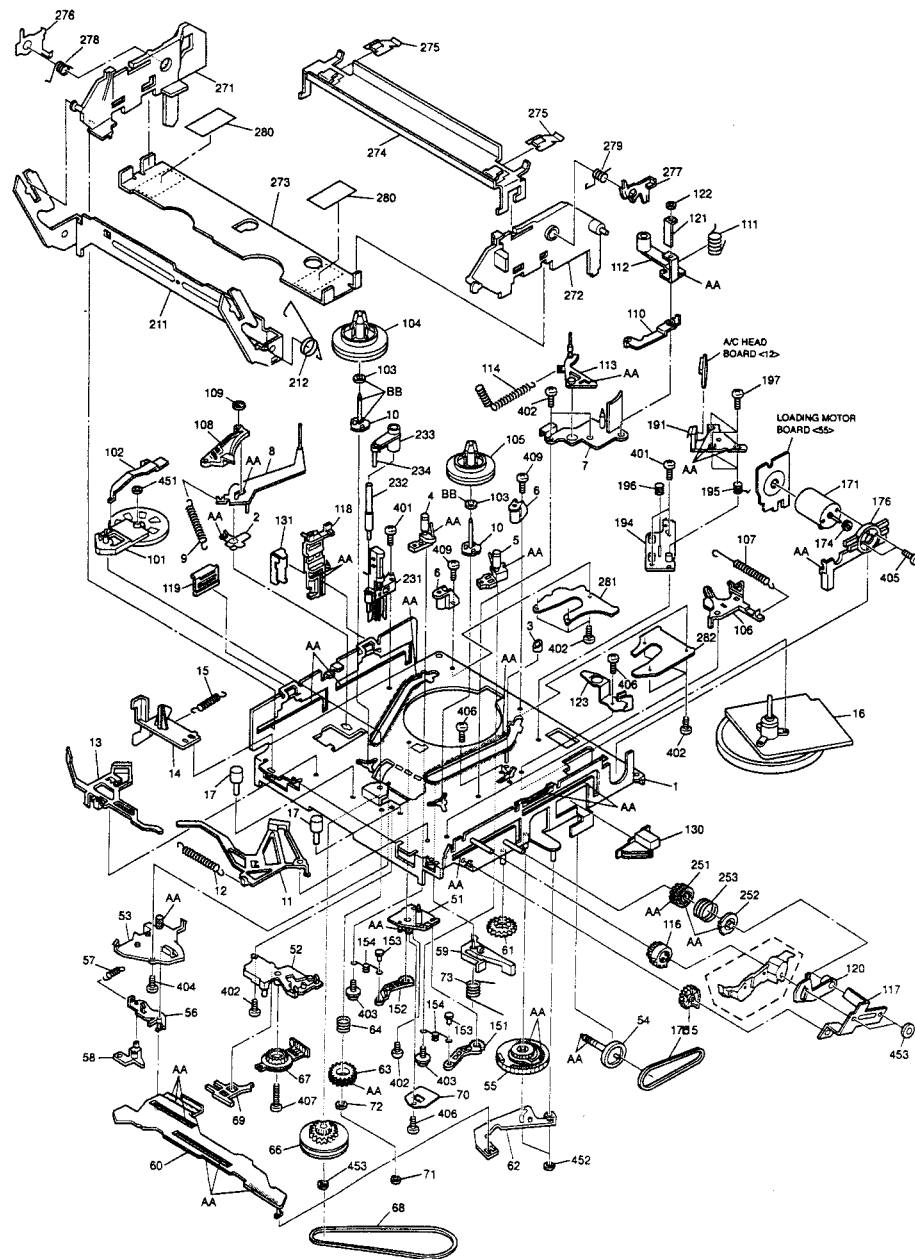
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



#	REF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION

CABINET AND CHASSIS ASSEMBLY <M2>							
△	550	LP10088-004B	FRONT PANEL ASSY				
	550A	LP20249-005B	C.H.DOOR				
	550B	PQ46448	TORSION SPRING				
	550C	LP20250-003A	DISPLAY WINDOW				
△	551	PQ11922-16-3	TOP COVER				
	552	QYDTSF3010M	SCREW, TOP COVER (REAR)				
	553	QYDTSF3010R	SCREW, X4 TOP COVER (SIDE)				
	554	LP20255-002A	WINDOW (DOOR)				
	555	LP20315-005A	COVER (F.P) ASSY				
	556	QYDTSF2608Z	SCREW, X2 COVER (FRONT PANEL)				
	557	LP40441-001A	SPACER (MECHA)				
	558	LP40226-001A	PC SUPPORT, X2				
	559A	LP20319-004A	DRUM SUB ASSY				
	559B	LP20030-009A	UPPER DRUM ASSY				
	559C	LP20002-01B	SENSOR BOARD ASSY				
	559D	LP40028-001A	COLLAR ASSY				
	559E	PDZ0179-2	ROTOR ASSY				
	559F	QYSPSP3006Z	SCREW, X2				
	559G	PDM4439	CAP				
	559H	PDZ0181-2-2	STATOR ASSY				
	559J	QYSPSP2606Z	SCREW, X2				
	559K	PDM4444-19-2	WASHER				
	559L	LP40323-001A	CONTACT				
	559M	LP30004-005A	COMPRES. SPRING				
△	560	LP10140-003A	BOTTOM CHASSIS				
△	563	PQ11921-1-3	BOTTOM COVER				
	564	QYTDST2610Z	SCREW, X3 DRUM				
	565	LP30312-001B	BRACKET (CHASSIS)				
	566	QYDTSF3010Z	SCREW, X2 BRACKET (CHASSIS)				
	567	QYDTSF4012Z	SCREW, X2 MECHA				
	568	QYDTSF3010Z	SCREW, X2 MECHA				
	569	QYDTSF3010M	SCREW, TERMINAL				
	570	QYDTSF3010Z	SCREW, X2 TERMINAL				
△	571	QMP51K0-170	POWER CORD				
	572	LP30247-001B	FRONT BRACKET				
	573	QYTDST2606Z	SCREW, X2 FRONT BRACKET				
	574	LP40451-001A	SPACER (OPENER)				
	575	LP20324-002C	DOOR OPENER				
	576	PQ46617A	FOOT ASSY				
	577	QYDTSF2608Z	SCREW, X2 JACK BOARD				
	578	PQ35504-2	FOOT (2), X2				
	579	LP40370-001B	ROLLER ARM ASSY				
	579A	PDM4311A-1	ROLLER ASSY				
	580	PQ45160	INERTIA PLATE				
	581	LP40407-001A	KNOB ASSY				
	582	QYDTSF3010Z	SCREW, X2 BOTTOM COVER				
	583	QYDTSF3008Z	SCREW, X2 TERMINAL				
	584	PQ21623-1-3	EARTH PLATE (RF)				
	587	LP40158-001B	DAMPER ASSY, C.H. DOOR				
	588	LP40158-002B	DAMPER ASSY, WINDOW (DOOR)				
	589	SDSF2608Z	SCREW, X2 DAMPER ASSY				
	WR1	QUQ212-0422CG	FFC WIRE, DRUM				
	WR2	QUQ112-1214CG	FFC WIRE, DISPLAY				
	WR3	WJT0005-002A	E-CARD WIRE, AC/HEAD				
	WR4	QUQ212-0448CG	FFC WIRE, S JACK				
	WR5	QUQ212-0514CG	FFC WIRE, JACK				
	WR6	QUQ112-0708CG	FFC WIRE, TERMINAL				

5.3 MECHANISM ASSEMBLY <M4>



NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	#	△ REF No.	PART No.	PART NAME, DESCRIPTION

MECHANISM ASSEMBLY <M4>							
1		LP20228-003D	MAIN DECK ASSY	120		LP30339-001A	OPENER GUIDE
2		LP30232-002A	T.ARM BEARING	121		LP40382-001A	P.R. SHEET
3		LP40097-001B	G.POLE CAP	122		LP30016-002A	SLIT WASHER,P.R.ARM
4		LP40101-003A	P.BASE ASSY(S)	123		LP30482-001A	P.ROLLER GUIDE
5		LP40104-002A	P.BASE ASSY(T)	130		LP30493-001A	START SENSOR CAP
6		LP30409-002A	UV CATCHER 2,X2	131		LP40457-001A	END SENSOR SHEET2
7		LP20234-001C	LID GUIDE	151		LP40103-002A	L.ARM GEAR(T)
8		LP40108-001A	TENSION ARM ASSY	152		LP30224-001A	L.ARM GEAR(S)
9		LP30003-010A	TENSION SPRING	153		LP40100-001A	PIN,L.ARM(T)
10		LP40123-001A	REEL SHAFT			LP40100-001A	PIN,L.ARM(S)
11		LP40111-002B	MAIN BRAKE AY (TAKE-UP)	154		LP40099-001A	TORSION ARM,L.ARM GEAR(T)
12		LP30003-002A	TENSION SPRING			LP40099-001A	TORSION ARM,L.ARM GEAR(S)
13		LP40110-002D	MAIN BRAKE ASSY (SUPPLY)	171		QAR0023-001	LOADING MOTOR
14		LP30245-001C	REC SAFTY LEVER	174		PQ43546-1-2	MOTOR PULLEY
15		LP30003-004A	TENSION SPRING	175		LP30005-003A	BELT,LOADING MOTOR
16		QAR0032-003	CAPSTAN MOTOR	176		LP30230-001B	MOTOR GUIDE
17		PQ46302-1-3	ADJUST PIN,X2	191		QAH0010-003	AC HEAD
51		LP30223-003B	L.A.GEAR SHAFT	194		LP30228-001A	HEAD BASE
52		LP20233-003B	R.ENCODER GUIDE	195		LP30004-012A	COMPRES. SPRING,X3
53		LP30226-003B	CTL.PLATE GUIDE	196		LP40236-001A	COMPRESSION SPRING
54		LP40120-001A	WORM GEAR	197		LP40213-002B	SPECIAL SCREW,X3
55		LP30229-001C	CTL.CAM	211		LP20240-001B	DRIVE ARM
56		LP30249-003B	T.U.P. LEVER	212		LP40137-001A	TORSION SPRING
57		LP30003-006A	TENSION SPRING	231		NAH0001-001	FULL ERASE HEAD
58		LP40119-002A	T.U.P. HEAD	232		LP40098-001B	GUIDE POLE(S)
59		LP40113-001A	C.BRAKE ASSY	233		LP30459-001A	TENSION STUD BASE
60		LP10080-002F	CTL.PLATE	234		LP40367-001A	TENSION STUD
61		LP30237-002A	CASSETTE GEAR	251		LP30239-002E	LIMIT GEAR(1)
62		LP40107-002A	LINK LEVER ASSY	252		LP30240-002C	LIMIT GEAR(2)
63		LP40122-001B	DIRECT GEAR	253		LP40136-001D	TORSION SPRING
64		LP40224-001B	COMPRESSION SPRING	271		LP10081-001D	SIDE HOLDER(L)
66		LP40115-002C	CLUTCH UNIT	272		LP40403-001C	S.HOLDER(R)ASSY
67		QSW0554-003	ROTARY ENCODER	273		LP30257-001C	CASSETTE HOLDER
68		LP30005-005A	BELT,CAPSTAN MOTOR	274		LP20241-001C	TOP PLATE
69		LP30235-002A	CHANGE LEVER	275		LP30258-001B	SPRING PLATE
70		LP40379-001A	CTL BRACKET(1)	276		LP30255-001G	LOCK LEVER(L)
71		LP30016-001A	SLIT WASHER	277		LP30256-001E	LOCK LEVER(R)
72		LP30017-009A	SPACER,D. GEAR	278		LP40168-001A	TOR.SPRING(L)
73		LP40355-002A	TORSION SPRING	279		LP40218-001B	TOR.SPRING(R)
101		LP40114-002D	IDLER ARM ASSY	280		LP30019-006C	PAD,X2
102		LP30236-002A	IDLER LEVER	281		LP40275-001A	PLATE(S)
103		LP30017-004A	SPACER,X2 REEL DISK	282		LP40276-001A	PLATE(T)
104		LP20237-001B	REEL DISK (SUPPLY)	401		QYTDST2608Z	SCREW,FE HEAD
105		LP20238-001B	REEL DISK (TAKE-UP)			QYTDST2608Z	SCREW,X2 HEAD BASE
106		LP40112-001E	S.BRAKE(T)ASSY	402		QYTDST2606Z	SCREW,X6 PLATE(S,T)
107		LP40357-001B	TENSION SPRING			QYTDST2606Z	SCREW,L.A. GEAR SHAFT
108		LP40109-002C	T.BRAKE ASSY			QYTDST2606Z	SCREW,R.ENCODER GUIDE
109		PQ46302-1-3	ADJUST PIN			QYTDST2606Z	SCREW,X2 LID GUIDE
110		LP40149-001B	P.LEVER ASSY	403		CYSPSTG2606Z	SCREW,POLE BASE(S)
111		LP40148-001A	TORSION SPRING			CYSPSTG2606Z	SCREW,POLE BASE(T)
112		LP40105-001B	P.R.ARM ASSY	404		QYTPST2605Z	SCREW,C.P.GUIDE
113		LP40106-001B	GUIDE ARM ASSY	405		QYTPSP3003Z	SCREW,X2 LOADING MOTOR
114		LP40134-001B	TENSION SPRING	406		QYTDSPF2608M	SCREW,CTL BRACKET(1)
115		LP30243-001B	DRIVE GEAR			QYTDSPF2608M	SCREW,X3 CAPSTAN MOTOR
116		LP30242-001A	RELAY GEAR	407		QYTPST2620Z	SCREW,ROTARY ENCODER
117		LP40214-001A	C.H.BRACKET	409		QYTPST2606Z	SCREW,X2 UV CATCHER
118		LP30244-001C	GUIDE RAIL	451		LP30016-001A	SLIT WASHER,IDLER ARM
119		LP40118-001A	RAIL CAP	452		PQM30017-24	SLIT WASHER,CONTROL CAM
						PQM30017-24	SLIT WASHER,LINK LEVER
				453		PQM30017-47	SLIT WASHER,CLUTCH
						PQM30017-47	SLIT WASHER,C.H.BRACKET

5.4 ELECTRICAL PARTS LIST

Δ REF No. PART No. PART NAME, DESCRIPTION

MAIN BOARD ASSEMBLY <03>

PW1	LPA10014-56B	MAIN BOARD ASSY
IC1	JCP8016-MSB	IC
IC2	MM1113XF	IC
IC2201	AN3665FB-A	IC
Δ IC2251	AN3328S	IC
IC3001	HD6433929TB40F	QFP IC (MCU)
IC3002	TA7291S	IC
IC3003	S-80728AN-DR-X	IC
	or S-80828ANUP-W	IC
IC3004	M24C08-BN6	IC
	or AT24C08-10PC	IC
	or 24LC08B/P	IC
	or X24C08P	IC
IC3301	HD6433926TB42F	QFP IC (MCU)
IC3302	TA7291S	IC
IC4001	BU2885CS	IC
IC6080	BA15218F-XE	IC
IC7201	UPD754302GS100X	IC(μ C ROM)
Q1	2SA1576A/QR/-X	TRANSISTOR
Q2	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q6	2SB1218A/QR/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576R/-X	TRANSISTOR
Q13	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q14	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q15	2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576R/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
Q16	UN511E	TRANSISTOR
	or RN2309	TRANSISTOR
	or DTA144WU	TRANSISTOR
Q17	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q18	UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
	or DTC144WU	TRANSISTOR
Q38	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q47	2SK433/D/-W	JUNCTION FET
Q48	2SK433/D/-W	JUNCTION FET
Q102	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q152	2SB1218A/QR/-X	TRANSISTOR
	or 2SA1576A/QRS/-X	TRANSISTOR
	or 2PA1576R/-X	TRANSISTOR
Q153	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR

Δ REF No. PART No. PART NAME, DESCRIPTION

Q401	2SA1576A/QR/-X	TRANSISTOR
Q402	UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
	or DTC144WU	TRANSISTOR
Q403	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q404	2SA1576A/QR/-X	TRANSISTOR
Q405	2SA1576A/QR/-X	TRANSISTOR
Q2001	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2002	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2003	DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
Q2051	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2052	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576R/-X	TRANSISTOR
Q2053	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2054	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576R/-X	TRANSISTOR
Q2055	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2061	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2062	DTA114EU	TRANSISTOR
	or RN2302	TRANSISTOR
	or UN511E	TRANSISTOR
Q2063	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2102	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2251	DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
Q2253	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2711	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2712	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2713	DTA114EU	TRANSISTOR
	or RN2302	TRANSISTOR
	or UN511E	TRANSISTOR
Q2714	DTC144WU	TRANSISTOR

Δ REF No. PART No. PART NAME, DESCRIPTION

	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q3001	PTZ-NV16	PHOTO TRANSISTOR
	or PTZ-NV09	PHOTO TRANSISTOR
Q3002	PTZ-NV16	PHOTO TRANSISTOR
	or PTZ-NV09	PHOTO TRANSISTOR
Q3003	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q3005	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q3006	UN521E	TRANSISTOR
	or RN2309	TRANSISTOR
	or DTC144WU	TRANSISTOR
Q3301	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q4001	DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
	or UN5211	TRANSISTOR
Q4002	DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
	or UN5211	TRANSISTOR
Q5101	2SK2632-CB14	POWER MOS FET
	or 2SK2129-LT	POWER MOS FET
	or 2SK2666F04	FE TRANSISTOR
	or 2SK2129	POWER MOS FET
	or 2SK2632	POWER MOS FET
Q5102	2SD2144S/UV/-T	TRANSISTOR
Q5301	2SB1256	TRANSISTOR
Q5302	UN5215	TRANSISTOR
	or DTC114TU	TRANSISTOR
Q5304	UN5211	TRANSISTOR
	or DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
Q5305	2SC1740S/RS/-T	TRANSISTOR
	or 2SC3199/YG/-T	TRANSISTOR
Q5306	2SD2144S/UVW/-T	TRANSISTOR
Q5315	2SD2061/F/	TRANSISTOR
Q5316	2SD1819A/RS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/RS/-X	TRANSISTOR
Q5317	2SD2061/F/	TRANSISTOR
Q5318	2SD1819A/RS/-X	TRANSISTOR
	or 2SC4081/RS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q5320	UN5111	TRANSISTOR
	or DTA114EU	TRANSISTOR
	or RN2302	TRANSISTOR
Q5322	2SD1450/ST/-T	TRANSISTOR
	or 2SD1302/ST/-T	TRANSISTOR
Q5323	2SD2375/QP/	TRANSISTOR
Q5451	2SB927/ST/-T	TRANSISTOR
Q5452	DTC144EU	TRANSISTOR
Q6001	2SC3068	TRANSISTOR
Q6030	2SB1218A/RS/-X	TRANSISTOR
	or 2PA1576R/-X	TRANSISTOR
	or 2SA1576A/RS/-X	TRANSISTOR
Q6031	DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR

Δ REF No. PART No. PART NAME, DESCRIPTION

	or UN5211	TRANSISTOR
D2001	1N4148M	DIODE
	or 1SS133	DIODE
D2201	11ES2	DIODE
D2253	DAP202U	DIODE
D3001	LNB2301L01V1	LE DIODE
D3002	11ES2	DIODE
D3003	11ES2	DIODE
D3005	RD39ES/B3/-T2	ZENER DIODE
	or UZ39BSC	ZENER DIODE
	or MTZJ39C	ZENER DIODE
D3007	1SS133	DIODE
	or 1N4148M	DIODE
D3008	1SS133	DIODE
	or 1N4148M	DIODE
D3009	1SS133	DIODE
	or 1N4148M	DIODE
D3013	1SS133	DIODE
	or 1N4148M	DIODE
D3014	1SS133	DIODE
	or 1N4148M	DIODE
D5001	S1WB(A)60F4102	BRIDGE DIODE
	or S1WB(A)60F4072X	BRIDGE DIODE
	or S1WB(A)60F4062X	BRIDGE DIODE
D5101	AU01	FR DIODE
	or ERA18-04-T2	FR DIODE
	or PG104RS	FR DIODE
	or 10ELS4	FR DIODE
	or 1SR153-400-T2	FR DIODE
D5102	AU01	FR DIODE
	or ERA18-04-T2	FR DIODE
	or PG104RS	FR DIODE
	or 1SR153-400-T2	FR DIODE
	or 10ELS4	FR DIODE
D5103	1N4148M	DIODE
	or 1SS133	DIODE
D5201	ERA18-02-T2	FR DIODE
	or 1SR153-400-T2	FR DIODE
D5202	FML-12S	FR DIODE
	or FCF06A20	FR DIODE
	or MA644	FR DIODE
	or YG901C2	FR DIODE
D5206	FMB-24	BARRIER DIODE
	or F5KQ40B	BARRIER DIODE
	or MA7D49	SB DIODE
	or YG801C04	SB DIODE
D5209	10ELS2	FR DIODE
	or 1SR153-400-T2	FR DIODE
	or PG104RS	FR DIODE
	or ERA18-02-T2	FR DIODE
D5210	AU01Z	FR DIODE
	or ERA18-02-T2	FR DIODE
	or PG104RS	FR DIODE
	or 10ELS2	FR DIODE
	or 1SR153-400-T2	FR DIODE
D5211	AU01Z	FR DIODE
	or PG104RS	FR DIODE
	or 1SR153-400-T2	FR DIODE
	or ERA18-02-T2	FR DIODE
	or 10ELS2	FR DIODE
D5301	UZ15BSA	ZENER DIODE

REF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION
	or MTZJ15A	ZENER DIODE		R71	NRSA02J-472X	MG RESISTOR		R2211	NRSA02J-511X	MG RESISTOR		R3043	NRSA02J-102X	MG RESISTOR
	or RD12ES/B1-T2	ZENER DIODE		R72	NRSA02J-0R0X	MG RESISTOR		R2213	NRSA02J-472X	MG RESISTOR		R3044	NRSA02J-102X	MG RESISTOR
D5302	11ES2	DIODE		R73	NRSA02J-473X	MG RESISTOR		R2214	NRSA02J-511X	MG RESISTOR		R3045	NRSA02J-102X	MG RESISTOR
	or ERA15-02-T2	DIODE		R94	NRSA02J-222X	MG RESISTOR		R2215	NRSA02J-682X	MG RESISTOR		R3046	NRSA02J-102X	MG RESISTOR
D5303	UZ12BSC	ZENER DIODE		R120	NRSA02J-0R0X	MG RESISTOR		R2216	NRSA02J-183X	MG RESISTOR		R3047	NRSA02J-102X	MG RESISTOR
	or RD12ES/B3-T2	ZENER DIODE		R121	NRSA02J-0R0X	MG RESISTOR		R2217	NRSA02J-682X	MG RESISTOR		R3048	NRSA02J-102X	MG RESISTOR
	or MTZJ12C	ZENER DIODE		R122	NRSA02J-101X	MG RESISTOR		R2218	NRSA02J-473X	MG RESISTOR		R3049	NRSA02J-102X	MG RESISTOR
D5304	1N4148M	DIODE		R123	NRSA02J-102X	MG RESISTOR		R2219	NRSA02J-473X	MG RESISTOR		R3050	NRSA02J-472X	MG RESISTOR
	or 1SS133	DIODE		R133	NRSA02J-222X	MG RESISTOR		R2220	NRSA02J-393X	MG RESISTOR		R3051	NRSA02J-102X	MG RESISTOR
D5305	UZ30BSA	ZENER DIODE		R137	NRSA02J-102X	MG RESISTOR		R2221	NRSA02J-473X	MG RESISTOR		R3052	NRSA02J-102X	MG RESISTOR
	or MTZJ30A	ZENER DIODE		R138	NRSA02J-392X	MG RESISTOR		R2222	NRSA02J-333X	MG RESISTOR		R3053	NRSA02J-472X	MG RESISTOR
	or RD30ES/B1-T2	ZENER DIODE		R143	NRSA02J-0R0X	MG RESISTOR		R2223	NRSA02J-222X	MG RESISTOR		R3054	NRSA02J-272X	MG RESISTOR
D5307	UZ6.2BSC	ZENER DIODE		R158	NRSA02J-102X	MG RESISTOR		R2224	NRSA02J-471X	MG RESISTOR		R3055	NRSA02J-102X	MG RESISTOR
	or RD6.2ES/B3-T2	ZENER DIODE		R168	NRSA02J-102X	MG RESISTOR		R2225	NRSA02J-221X	MG RESISTOR		R3056	NRSA02J-102X	MG RESISTOR
	or MTZJ6.2C	ZENER DIODE		R169	NRSA02J-102X	MG RESISTOR		R2226	NRSA02J-102X	MG RESISTOR		R3057	NRSA02J-471X	MG RESISTOR
D5311	RD5.1JS/B2-T2	ZENER DIODE		R192	NRSA02J-106X	MG RESISTOR		R2228	NRSA02J-221X	MG RESISTOR		R3058	NRSA02J-102X	MG RESISTOR
	or MA4051N/M-T2	ZENER DIODE		R193	NRSA02J-475X	MG RESISTOR		R2229	NRSA02J-221X	MG RESISTOR		R3059	NRSA02J-471X	MG RESISTOR
D5312	1N4148M	DIODE		R401	NRSA02J-473X	MG RESISTOR		R2232	NRSA02J-123X	MG RESISTOR		R3060	NRSA02J-102X	MG RESISTOR
	or 1SS133	DIODE		R402	NRSA02J-472X	MG RESISTOR		R2233	NRSA02J-823X	MG RESISTOR		R3061	NRSA02J-102X	MG RESISTOR
D5313	RD5.1JS/B2-T2	ZENER DIODE		R403	NRSA02J-393X	MG RESISTOR		R2251	NRSA02J-101X	MG RESISTOR		R3062	NRSA02J-102X	MG RESISTOR
D5314	1SS133	DIODE		R404	NRSA02J-683X	MG RESISTOR		R2253	NRSA02J-270X	MG RESISTOR		R3064	NRSA02J-102X	MG RESISTOR
D5351	11E2-T5	DIODE		R405	NRSA02J-473X	MG RESISTOR		R2254	NRSA02J-220X	MG RESISTOR		R3067	NRSA02J-472X	MG RESISTOR
D5352	11E2-T5	DIODE		R408	NRSA02J-561X	MG RESISTOR		R2256	NRSA02J-102X	MG RESISTOR		R3068	NRSA02J-102X	MG RESISTOR
D5353	11E2-T5	DIODE		R409	NRSA02J-681X	MG RESISTOR		R2257	NRSA02J-101X	MG RESISTOR		R3069	NRSA02J-271X	MG RESISTOR
D5354	11E2-T5	DIODE		R410	NRSA02J-221X	MG RESISTOR		R2258	NRSA02J-221X	MG RESISTOR		R3070	NRSA02J-271X	MG RESISTOR
D6001	MTZJ10B	ZENER DIODE		R2001	NRSA02J-103X	MG RESISTOR		R2259	NRSA02J-222X	MG RESISTOR		R3071	NRSA02J-472X	MG RESISTOR
D6002	HZ30-2L-T2	ZENER DIODE		R2002	NRSA02J-103X	MG RESISTOR		R2711	NRSA02J-221X	MG RESISTOR		R3073	NRSA02J-472X	MG RESISTOR
	or HZ30-2LTD	Z DIODE (M)		R2003	NRSA02J-682X	MG RESISTOR		R2712	NRSA02J-221X	MG RESISTOR		R3074	NRSA02J-472X	MG RESISTOR
R1	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2004	NRSA02J-224X	MG RESISTOR	220kQ, 1/10W	R2713	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3075	NRSA02J-472X	MG RESISTOR
R2	NRSA02J-561X	MG RESISTOR	560Q, 1/10W	R2005	NRSA02J-181X	MG RESISTOR	180Q, 1/10W	R2714	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3076	NRSA02J-472X	MG RESISTOR
R3	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R2006	NRSA02J-273X	MG RESISTOR	27kQ, 1/10W	R2715	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3077	NRSA02J-472X	MG RESISTOR
R4	NRSA02J-822X	MG RESISTOR	8.2kQ, 1/10W	R2007	NRSA02J-223X	MG RESISTOR	22kQ, 1/10W	R2716	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3078	NRSA02J-102X	MG RESISTOR
R5	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R2009	NRSA02J-101X	MG RESISTOR	100Q, 1/10W	R3001	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3079	NRSA02J-562X	MG RESISTOR
R6	NRSA02J-681X	MG RESISTOR	680Q, 1/10W	R2013	NRSA02J-101X	MG RESISTOR	100Q, 1/10W	R3002	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3080	NRSA02J-682X	MG RESISTOR
R7	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R2016	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R3003	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3201	NRSA02J-104X	MG RESISTOR
R9	NRSA02J-333X	MG RESISTOR	33kQ, 1/10W	R2018	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3004	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R3203	NRSA02J-562X	MG RESISTOR
R10	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R2019	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3010	NRSA02J-105X	MG RESISTOR	1MQ, 1/10W	R3204	NRSA02J-222X	MG RESISTOR
R11	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2053	NRSA02J-562X	MG RESISTOR	5.6kQ, 1/10W	R3014	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R3205	NRSA02J-103X	MG RESISTOR
R13	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2054	NRSA02J-153X	MG RESISTOR	15kQ, 1/10W	R3015	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3206	NRSA02J-472X	MG RESISTOR
R14	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2055	NRSA02J-3R3X	MG RESISTOR	3.3Q, 1/10W	R3016	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3207	NRSA02J-103X	MG RESISTOR
R15	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2056	QRE141J-101Y	RESISTOR	100Q, 1/4W	R3017	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3209	QRE141J-181Y	RESISTOR
R16	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2057	NRSA02J-473X	MG RESISTOR	47kQ, 1/10W	R3018	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R3210	NRSA02J-183X	MG RESISTOR
R17	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2058	NRSA02J-183X	MG RESISTOR	18kQ, 1/10W	R3019	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R3211	NRSA02J-183X	MG RESISTOR
R18	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2059	NRSA02J-473X	MG RESISTOR	47kQ, 1/10W	R3020	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3212	NRSA02J-181X	MG RESISTOR
R19	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2060	NRSA02J-183X	MG RESISTOR	18kQ, 1/10W	R3021	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3213	NRSA02J-273X	MG RESISTOR
R24	NRVA02D-622X	CMF RESISTOR	6.2kQ, 1/10W	R2061	NRSA02J-273X	MG RESISTOR	27kQ, 1/10W	R3022	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3214	NRSA02J-181X	MG RESISTOR
R25	NRVA02D-152X	CMF RESISTOR	1.5kQ, 1/10W	R2062	NRSA02J-3R3X	MG RESISTOR	3.3Q, 1/10W	R3023	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3215	NRSA02J-273X	MG RESISTOR
R46	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R2063	NRSA02J-151X	MG RESISTOR	150Q, 1/10W	R3024	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3220	NRSA02J-103X	MG RESISTOR
R47	NRSA02J-562X	MG RESISTOR	5.6kQ, 1/10W	R2101	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R3025	NRSA02J-221X	MG RESISTOR	220Q, 1/10W	R3223	NRSA02J-472X	MG RESISTOR
R48	NRSA02J-221X	MG RESISTOR	220Q, 1/10W	R2102	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R3031	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R3224	NRSA02J-472X	MG RESISTOR
R49	NRSA02J-221X	MG RESISTOR	220Q, 1/10W	R2105	NRSA02J-331X	MG RESISTOR	330Q, 1/10W	R3032	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R3225	NRSA02J-104X	MG RESISTOR
R50	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R2201	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R3033	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R3226	NRSA02J-103X	MG RESISTOR
R52	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2202	NRSA02J-333X	MG RESISTOR	33kQ, 1/10W	R3034	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R3227	NRSA02J-393X	MG RESISTOR
R54	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2203	NRSA02J-473X	MG RESISTOR	47kQ, 1/10W	R3035	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R3228	NRSA02J-474X	MG RESISTOR
R55	NRSA02J-122X	MG RESISTOR	1.2kQ, 1/10W	R2204	NRSA02J-393X	MG RESISTOR	39kQ, 1/10W	R3036	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R3229	NRSA02J-334X	MG RESISTOR
R56	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2205	NRSA02J-473X	MG RESISTOR	47kQ, 1/10W	R3037	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R3230	NRSA02J-102X	MG RESISTOR
R57	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R2206	NRSA02J-473X	MG RESISTOR	47kQ, 1/10W	R3038	NRSA02J-103X	MG RESISTOR	10kQ, 1/10W	R3231	NRSA02J-472X	MG RESISTOR
R62	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R2207	NRSA02J-682X	MG RESISTOR	6.8kQ, 1/10W	R3039	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R3232	NRSA02J-472X	MG RESISTOR
R63	NRSA02J-682X	MG RESISTOR	6.8kQ, 1/10W	R2208	NRSA02J-183X	MG RESISTOR	18kQ, 1/10W	R3040	NRSA02J-152X	MG RESISTOR	1.5kQ, 1/10W	R3233	NRSA02J-103X	MG RESISTOR
R68	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2209	NRSA02J-682X	MG RESISTOR	6.8kQ, 1/10W	R3041	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R3234	NRSA02J-103X	MG RESISTOR
R69	NRSA02J-0R0X	MG RESISTOR	0Q, 1/10W	R2210	NRSA02J-472X	MG RESISTOR	4.7kQ, 1/10W	R3042	NRSA02J-102X	MG RESISTOR	1kQ, 1/10W	R3235	NRSA02J-221X	MG RESISTOR

EF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION	
3236	NRSA02J-221X	MG RESISTOR	220Ω, 1/10W	R3368	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5328	QRE141J-331Y	RESISTOR	330Ω, 1/4W	C41	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3237	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R3369	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5330	NRSA02J-561X	MG RESISTOR	560Ω, 1/10W	C42	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3238	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R3370	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R5331	NRSA02J-561X	MG RESISTOR	560Ω, 1/10W	C43	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3239	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R3371	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5332	NRSA02J-561X	MG RESISTOR	560Ω, 1/10W	C45	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3240	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R3373	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5340	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C46	NDC21HJ-101X	CAPACITOR	100pF, 50V
3241	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R3374	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5341	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C47	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3242	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R3375	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R5342	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C48	QEKJ0JM-476	E CAPACITOR	47μF, 6.3V
3243	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R3376	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5343	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	C49	NDC21HJ-221X	CAPACITOR	220pF, 50V
3246	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R3377	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5344	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C54	QEKJ1CM-106	E CAPACITOR	10μF, 16V
3250	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R3378	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5345	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C55	QEKJ1CM-106	E CAPACITOR	10μF, 16V
3252	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R3379	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5346	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C56	QEKJ1HM-335	E CAPACITOR	3.3μF, 50V
3255	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R3380	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5347	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	C57	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3256	NRSA02J-391X	MG RESISTOR	390Ω, 1/10W	R3501	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R5348	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C58	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3257	NRSA02J-391X	MG RESISTOR	390Ω, 1/10W	R3502	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R5349	NRSA02J-473X	MG RESISTOR	47kΩ, 1/10W	C59	NCB21EK-473X	CAPACITOR	0.047μF, 25V
3258	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R3503	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R5350	NRSA02J-221X	MG RESISTOR	220Ω, 1/10W	C62	NCF21CZ-334X	CAPACITOR	0.33μF, 16V
3259	NRSA02J-393X	MG RESISTOR	39kΩ, 1/10W	R3504	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R5351	NRSA02J-473X	MG RESISTOR	47kΩ, 1/10W	C63	NDC21HG-151X	CAPACITOR	150pF, 50V
3260	NRSA02J-103X	RESISTOR	10kΩ, 1/10W	R3505	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R5451	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	C64	QEKJ0JM-227	E CAPACITOR	220μF, 6.3V
3301	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R3506	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5452	QRE123J-331Y	RESISTOR	330Ω, 1/2W	C65	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3302	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R3508	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R6001	NRSA02J-271X	MG RESISTOR	270Ω, 1/10W	C73	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3303	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R3510	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R6002	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C74	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
3304	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R3511	NRSA02J-153X	MG RESISTOR	15kΩ, 1/10W	R6020	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C76	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3310	NRSA02J-105X	MG RESISTOR	1MΩ, 1/10W	R3512	NRSA02J-272X	MG RESISTOR	2.7kΩ, 1/10W	R6021	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C77	NDC21HJ-270X	CAPACITOR	270pF, 50V
3314	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R3513	NRSA02J-153X	MG RESISTOR	15kΩ, 1/10W	R6022	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C79	NDC21HJ-120X	CAPACITOR	12pF, 50V
3315	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R3514	NRSA02J-562X	MG RESISTOR	5.6kΩ, 1/10W	R6023	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C85	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3316	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R3515	NRSA02J-123X	MG RESISTOR	12kΩ, 1/10W	R6030	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C86	QEKJ0JM-476	E CAPACITOR	47μF, 6.3V
3317	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R3516	NRSA02J-223X	MG RESISTOR	22kΩ, 1/10W	R6032	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C87	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3318	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R4001	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R6051	NRSA02J-101X	MG RESISTOR	100Ω, 1/10W	C88	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3319	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R4003	NRSA02J-122X	MG RESISTOR	1.2kΩ, 1/10W	R6052	NRSA02J-101X	MG RESISTOR	100Ω, 1/10W	C89	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3320	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R4005	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R6053	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	C90	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3321	NRSA02J-222X	MG RESISTOR	2.2kΩ, 1/10W	R4007	NRSA02J-821X	MG RESISTOR	820Ω, 1/10W	R6054	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C91	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3322	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R4008	NRSA02J-562X	MG RESISTOR	5.6kΩ, 1/10W	R6084	NRSA02J-682X	MG RESISTOR	6.8kΩ, 1/10W	C92	NDC21HJ-120X	CAPACITOR	12pF, 50V
3323	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R4009	NRSA02J-222X	MG RESISTOR	2.2kΩ, 1/10W	R6085	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	C98	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3324	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R4011	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R7168	NRSA02J-750X	MG RESISTOR	75Ω, 1/10W	C105	QDYB1CM-103Y	CAPACITOR	0.01μF, 16V
3325	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R4012	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	R7201	NRSA02J-105X	MG RESISTOR	1MΩ, 1/10W	C107	NDC21HJ-5R0X	CAPACITOR	5pF, 50V
3326	NRSA02J-332X	MG RESISTOR	3.3kΩ, 1/10W	R4013	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R7221	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C108	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3327	NRSA02J-332X	MG RESISTOR	3.3kΩ, 1/10W	R4015	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R7236	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C118	NCB21CK-474X	CAPACITOR	0.47μF, 16V
3331	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5101	QRE141J-334Y	RESISTOR	330kΩ, 1/4W	R7241	NRSA02J-103X	RESISTOR	10kΩ, 1/10W	C127	NCB21CK-474X	CAPACITOR	0.47μF, 16V
3334	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5102	QRE141J-334Y	RESISTOR	330kΩ, 1/4W	VR2251	QVPA606-102Z	V RESISTOR, FMA REC FM		C133	NCB21EK-104X	CAPACITOR	0.1μF, 25V
3334	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5103	QRE141J-683Y	RESISTOR	68kΩ, 1/4W	C1	QEKJ1CM-106	E CAPACITOR	10μF, 16V	C134	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3334	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5104	QRG029J-154G	OMF RESISTOR	150kΩ, 2W	C3	NCF21CZ-105X	CAPACITOR	1μF, 16V	C141	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3334	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω, 1W	C5	NCF21CZ-105X	CAPACITOR	1μF, 16V	C143	QEKJ0JM-476	E CAPACITOR	47μF, 6.3V
3334	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5107	QRE121J-331Y	RESISTOR	330Ω, 1/2W	C6	NCB11EK-104X	CAPACITOR	0.1μF, 25V	C164	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
3334	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5108	NRSA02J-222X	MG RESISTOR	2.2kΩ, 1/10W	C7	QEKJ0JM-107	E CAPACITOR	100μF, 6.3V	C165	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
3334	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5109	NRSA02J-681X	MG RESISTOR	680Ω, 1/10W	C9	NCF21CZ-105X	CAPACITOR	1μF, 16V	C172	QDX11EK-104	CAPACITOR	0.1μF, 25V
3335	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5110	NRSA02J-224X	MG RESISTOR	220kΩ, 1/10W	C11	NCF21CZ-105X	CAPACITOR	1μF, 16V	C173	NDC21HJ-220X	CAPACITOR	22pF, 50V
3335	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5111	NRSA02J-821X	MG RESISTOR	820Ω, 1/10W	C12	NCB21EK-104X	CAPACITOR	0.1μF, 25V	C401	QEKJ1CM-106	E CAPACITOR	10μF, 16V
3335	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5301	NRSA02J-3R3X	MG RESISTOR	3.3Ω, 1/10W	C13	QEKJ1HM-335	E CAPACITOR	3.3μF, 50V	C402	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3335	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	R5302	NRSA02J-3R3X	MG RESISTOR	3.3Ω, 1/10W	C14	NCB21EK-333X	CAPACITOR	0.033μF, 25V	C403	NDC21HJ-150X	CAPACITOR	15pF, 50V
3335	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R5303	NRSA02J-3R3X	MG RESISTOR	3.3Ω, 1/10W	C16	NCF21CZ-105X	CAPACITOR	1μF, 16V	C404	NCB21HK-102X	CAPACITOR	0.001μF, 50V
3335	NRSA02J-332X	MG RESISTOR	3.3kΩ, 1/10W	R5304	NRSA02J-3R9X	MG RESISTOR	3.9Ω, 1/10W	C20	NCF21CZ-225X	CAPACITOR	2.2μF, 16V	C406	NDC21HJ-470X	CAPACITOR	47pF, 50V
3335	NRSA02J-332X	MG RESISTOR	3.3kΩ, 1/10W	R5307	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C21	NCB21CK-563X	CAPACITOR	0.056μF, 16V	C407	NCB21HK-223X	CAPACITOR	0.022μF, 50V
3335	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5308	NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	C23	NCB21HK-223X	CAPACITOR	0.022μF, 50V	C408	NDC21HJ-121X	CAPACITOR	120pF, 50V
3335	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5309	NRSA02J-222X	MG RESISTOR	2.2kΩ, 1/10W	C24	NCB21CK-474X	CAPACITOR	0.47μF, 16V	C409	NCB21HK-103X	CAPACITOR	0.01μF, 50V
3335	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5312	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C25	NCB21CK-104X	CAPACITOR	0.1μF, 16V	C2002	QEKJ1CM-476	E CAPACITOR	47μF, 16V
3336	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5313	NRSA02J-122X	MG RESISTOR	1.2kΩ, 1/10W	C27	NDC21HJ-101X	CAPACITOR	100pF, 50V	C2003	NCB21HK-123X	CAPACITOR	0.012μF, 50V
3336	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5314	QRZ9005-470X	FUSI RESISTOR	47Ω, 1/4W	C29	NBE20JM-475X	T CAPACITOR	4.7μF, 6.3V	C2004	QEKJ1CM-226	E CAPACITOR	22μF, 16V
3336	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5315	NRSA02J-122X	MG RESISTOR	1.2kΩ, 1/10W	C30	NBE20JM-475X	T CAPACITOR	4.7μF, 6.3V	C2005	NCB21HK-102X	CAPACITOR	0.001μF, 50V
3336	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5316	QRA14CF-2211Y	CMF RESISTOR	2.21kΩ, 1/4W	C31	NCB21HK-223X	CAPACITOR	0.022μF, 50V	C2006	NCB21HK-331X	CAPACITOR	330pF, 50V
3336	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R5317	QRA14CF-3481Y	CMF RESISTOR	3.48kΩ, 1/4W	C32	NCB21HK-103X	CAPACITOR	0.01μF, 50V	C2007	QEKJ1CM-106	E CAPACITOR	10μF, 16V
3336	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	R5319	QRE141J-511Y	RESISTOR	510Ω, 1/4W	C34	NCB21EK-473X	CAPACITOR	0.047μF, 25V	C2008	NCB21HK-152X	CAPACITOR	0.0015μF, 50V
3337	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	R5320	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C37	QEKJ0JM-476	E CAPACITOR	47μF, 6.3V	C2009	QEKJ1EM-475	E CAPACITOR	4.7μF, 25V

#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
C2010		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C2011		NCB21EK-333X	CAPACITOR 0.033μF,25V
C2013		NCB21EK-333X	CAPACITOR 0.033μF,25V
C2015		QEKJ1CM-226	E CAPACITOR 22μF,16V
C2016		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C2051		NCB21HK-331X	CAPACITOR 330pF,50V
C2052		QFLC1HJ-333Z	F CAPACITOR 0.033μF,50V
C2053		NCB21HK-332X	CAPACITOR 0.0033μF,50V
C2054		NCB21EK-103X	CAPACITOR 0.01μF,25V
C2055		QEKJ1CM-106	E CAPACITOR 10μF,16V
C2061		QFLC1HJ-333Z	F CAPACITOR 0.033μF,50V
C2062		NCB21HK-332X	CAPACITOR 0.0033μF,50V
C2063		NCB21HK-223X	CAPACITOR 0.01μF,50V
C2064		QEKJ1CM-106	E CAPACITOR 10μF,16V
C2101		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C2102		QEKJ1CM-226	E CAPACITOR 22μF,16V
C2103		NCB21EK-104X	CAPACITOR 0.1μF,25V
C2202		QETC1CM-226Z-E	E CAPACITOR 22μF,16V
C2205		QEKJ1HM-105	E CAPACITOR 1μF,50V
C2207		NCB21CK-473X	CAPACITOR 0.047μF,16V
C2208		QETC1CM-476	E CAPACITOR 47μF,16V
C2209		QETC1HM-225	E CAPACITOR 2.2μF,50V
C2210		QETC1CM-476	E CAPACITOR 47μF,16V
C2211		NCB21HK-153X	CAPACITOR 0.015μF,50V
C2212		NCB21HK-103X	CAPACITOR 0.01μF,50V
C2213		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C2214		NCB21HK-103X	CAPACITOR 0.01μF,50V
C2215		QEKJ1HM-224	E CAPACITOR 0.22μF,50V
C2216		QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C2217		NCB21HK-103X	CAPACITOR 0.01μF,50V
C2218		NCB21HK-153X	CAPACITOR 0.015μF,50V
C2219		QETC1CM-476	E CAPACITOR 47μF,16V
C2220		QETC1HM-225	E CAPACITOR 2.2μF,50V
C2221		NCB21CK-473X	CAPACITOR 0.047μF,16V
C2222		QEKJ1CM-476	E CAPACITOR 47μF,16V
C2224		QEKJ1HM-105	E CAPACITOR 1μF,50V
C2227		QEKJ1HM-224	E CAPACITOR 0.22μF,50V
C2228		QEKJ1CM-476	E CAPACITOR 47μF,16V
C2229		QEKJ1CM-226	E CAPACITOR 22μF,16V
C2230		QEKJ1CM-106	E CAPACITOR 10μF,16V
C2231		QTE1H11-106Z	E CAPACITOR 10μF
C2232		QTE1H11-106Z	E CAPACITOR 10μF
C2233		QEKJ1HM-105	E CAPACITOR 1μF,50V
C2234		QEKJ1HM-105	E CAPACITOR 1μF,50V
C2236		QTE1C40-476	E CAPACITOR 47μF
C2239		NCB21EK-104X	CAPACITOR 0.1μF,25V
C2251		NCB21HK-103X	CAPACITOR 0.01μF,50V
C2252		NCB21HK-103X	CAPACITOR 0.01μF,50V
C2253		NCB21HK-103X	CAPACITOR 0.01μF,50V
C2254		QEKJ1CM-476	E CAPACITOR 47μF,16V
C2255		NCB21EK-104X	CAPACITOR 0.1μF,25V
C2256		NDC21HJ-101X	CAPACITOR 100pF,50V
C2257		NCB21HK-103X	CAPACITOR 0.01μF,50V
C2258		NCB21HK-223X	CAPACITOR 0.022μF,50V
C2259		NCB21HK-103X	CAPACITOR 0.01μF,50V
C2261		NCB21HK-103X	CAPACITOR 0.01μF,50V
C3001		QEKJ1CM-336	E CAPACITOR 33μF,16V
C3004		QETN0JM-228	E CAPACITOR 2200μF,6.3V
C3006		NCB21CK-473X	CAPACITOR 0.047μF,16V
C3012		NDC21HJ-102X	CAPACITOR 0.001μF,50V
C3015		QEKJ1CM-106	E CAPACITOR 10μF,16V

#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
C3016		NCB21HK-103X	CAPACITOR 0.01μF,50V
C3017		NDC21HJ-180X	CAPACITOR 18pF,50V
C3018		QAT7001-450Z	TRIM CAPACITOR,TIMER CLOCK
C3022		NCB21CK-473X	CAPACITOR 0.047μF,16V
C3025		QEKJ1HM-106	E CAPACITOR 10μF,50V
C3026		NCB21HK-103X	CAPACITOR 0.01μF,50V
C3027		NCB21EK-104X	CAPACITOR 0.1μF,25V
C3034		NCB21HK-221X	CAPACITOR 220pF,50V
C3042		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
C3043		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
C3302		QEKJ1CM-106	E CAPACITOR 10μF,16V
C3303		NCB21EK-104X	CAPACITOR 0.1μF,25V
C3306		NCB21EK-104X	CAPACITOR 0.1μF,25V
C3307		NCB21EK-104X	CAPACITOR 0.1μF,25V
C4001		NDC21HJ-101X	CAPACITOR 100pF,50V
C4002		NCB21HK-102X	CAPACITOR 0.001μF,50V
C4003		NCB21HK-102X	CAPACITOR 0.001μF,50V
C4004		NCB21HK-102X	CAPACITOR 0.001μF,50V
C4005		NDC21HJ-470X	CAPACITOR 47pF,50V
C4006		QEKJ1HM-105	E CAPACITOR 1μF,50V
C4007		NCB21EK-104X	CAPACITOR 0.1μF,25V
C4008		NCB21EK-103X	CAPACITOR 0.01μF,25V
C4010		QEKJ1CM-106	E CAPACITOR 10μF,16V
C4011		QEKJ0JM-107	E CAPACITOR 100μF,6.3V
C4013		QEKJ1CM-106	E CAPACITOR 10μF,16V
C4014		NCB21EK-223X	CAPACITOR 0.022μF,25V
C4015		NCB21HK-222X	CAPACITOR 0.0022μF,50V
C4018		NDC21HJ-221X	CAPACITOR 220pF,50V
C4019		NCB21EK-223X	CAPACITOR 0.022μF,25V
Δ C5001		QFZ9051-683	F CAPACITOR 0.068μF,250V
Δ C5002		QFZ9051-333	F CAPACITOR 0.033μF,250V
Δ C5005		QCZ9071-222	CAPACITOR 0.0022μF,400V
C5006		QEZ0374-686	E CAPACITOR 68μF,400V
C5101		QCZ0212-472	CAPACITOR 0.0047μF,1kV
C5102		QCZ0302-330Z	CAPACITOR 33pF,1kV
C5104		QETC1HM-105	E CAPACITOR 1μF,50V
C5105		QFN31HJ-183	F CAPACITOR 0.018μF,50V
C5106		QCB81HJ-271	CAPACITOR 270pF,50V
C5107		QFVF1HJ-104Z	F CAPACITOR 0.1μF,50V
C5201		QEMU0JM-227	E CAPACITOR 220μF,6.3V
C5202		QEMT1CM-128	E CAPACITOR 1200μF,16V
C5203		QETC1CM-227	E CAPACITOR 220μF,16V
C5204		QEMT1AM-128	E CAPACITOR 1200μF,10V
C5205		QETC1AM-227	E CAPACITOR 220μF,10V
C5206		QEMU1EM-187	E CAPACITOR 180μF,25V
C5207		QETC1JM-106	E CAPACITOR 10μF,63V
C5208		QETC1HM-106	E CAPACITOR 10μF,50V
C5301		QETC1AM-107	E CAPACITOR 100μF,10V
C5302		QETC1HM-106	E CAPACITOR 10μF,50V
C5303		QETC1CM-107	E CAPACITOR 100μF,16V
C5306		NCF21HZ-103X	CAPACITOR 0.01μF,50V
C5307		QETC1HM-474	E CAPACITOR 0.47μF,50V
C5308		NCB21HK-102X	CAPACITOR 0.001μF,50V
C5309		QETC1AM-107	E CAPACITOR 100μF,10V
C5310		QETC1CM-226	E CAPACITOR 22μF,16V
C5314		NCB21HK-102X	CAPACITOR 0.001μF,50V
C5315		QETC1AM-107	E CAPACITOR 100μF,10V
C5316		QETC1CM-476	E CAPACITOR 47μF,16V
C5317		QETC1CM-107	E CAPACITOR 100μF,16V
C6001		QETC1CM-476	E CAPACITOR 47μF,16V
C6003		QETC1CM-336	E CAPACITOR 33μF,16V

#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
C6004		NCB21HK-103X	CAPACITOR 0.01μF,50V
C6005		QETC1HM-106	E CAPACITOR 10μF,50V
C6006		NCB21HK-103X	CAPACITOR 0.01μF,50V
C6008		NCB21HK-103X	CAPACITOR 0.01μF,50V
C6012		QETC1HM-106	E CAPACITOR 10μF,50V
C6014		NCB21CK-473X	CAPACITOR 0.047μF,16V
C6024		NCB21HK-471X	CAPACITOR 470pF,50V
C6027		NDC21HJ-101X	CAPACITOR 100pF,50V
C6031		QETC1HM-106	E CAPACITOR 10μF,50V
C6033		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
C6051		NDC21HJ-101X	CAPACITOR 100pF,50V
C6052		NCB21HK-103X	CAPACITOR 0.01μF,50V
C7201		NCB21HK-103X	CAPACITOR 0.01μF,50V
L1		QQL29BJ-100Z	COIL 10μH
L4		QQL29BJ-100Z	COIL 10μH
L5		QQL29BJ-151Z	COIL 150μH
L6		QQL29BJ-101Z	COIL 100μH
L7		QQL29BJ-100Z	COIL 10μH
L9		QQL29BJ-100Z	COIL 10μH
L12		QQL071J-330Y	COIL 33μH
L13		QQL071J-120Y	COIL 12μH
L14		QQL071J-820Y	COIL 82μH
L16		QQL29BJ-100Z	COIL 10μH
L18		PELN1203	COIL 12μH
L401		QQL29BJ-101Z	COIL 100μH
L402		QQL03BJ-150Z	COIL 150μH
L2251		QQL29BJ-100Z	COIL 10μH
L3003		QQL29BJ-100Z	COIL 10μH
L3302		QQL29BJ-100Z	COIL 10μH
L4001		QQL071J-270Y	COIL 27μH
L5201		PELN1184	COIL 33μH
L5202		PU60944-330K	COIL 33μH
L5301		QQL01BK-101Z	COIL 100μH
L6002		QQL29BK-1R0Z	COIL 1μH
L6031		QQL29BK-1R0Z	COIL 1μH
Δ LF5001		PELN1204-01-01	LINE FILTER
Δ LF5002		QQR0608-001	LINE FILTER
CF3001		QAX0356-001Z	RESONATOR
CF3301		QAX0356-001Z	RESONATOR
CF7201		QAX0498-001Z	RESONATOR
X1		QAX0436-001	CRYSTAL RESONATOR
X3001		QAX0445-001	CRYSTAL RESONATOR
S3003		QSW0695-001	PUSH SWITCH,S CASS
K5101		QQR0678-001Z	FERRITE BEAD
PC3001		GP3S123	PHOTOTRANSISTOR
PC3002		GP3S123	PHOTOTRANSISTOR
Δ PC5101		ON3171R/R	IC(PHOTO COUPLE)
T2051		PELN0860	OSC TRANSFORMER
T2052		PELN0861	OSC TRANSFORMER
Δ T5001		QQS0021-001	SW TRANSFORMER
ET1		LP40280-001B	EARTH PLATE
SD1		LP30364-001A	S.CASE(PRE/REC)
Δ HS1		PQ46583-1-1	HEAT SINK,Q5101
OT1		QYTDST3008Z	SCREW,X2 Q5101
TU6001		QAU0074-001	TUNER
Δ F5001		QMF51E2-1R6J1	FUSE T1.6A
FC5001		QNG0006-001Z	FUSE CLIP
FC5002		QNG0006-001Z	FUSE CLIP
J7108		PU61012	MINI JACK,R,PAUSE I/O
CN1		QGF1018C1-13	FPC CONNECTOR,(1-13)U.DRUM
CN2001		QGF1207C1-07	FPC CONNECTOR,(1-7)A/C HEAD

#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
CN2002		QGB2532J1-02	CONNECTOR,(1-2)FE HEAD
CN3001		QGB2015M1-08	CONNECTOR,(1-8)CAP.MOTOR
CN3003		QGB2532J1-02	CONNECTOR,(1-2)L.MOTOR
CN3004		QGB2534J2-04	CONNECTOR,(1-4)R.ENCODER
CN3005		QGF1207C1-12	FPC CONNECTOR,(1-12)FRONT
CN3301		QGB2011L2-06	CONNECTOR,(1-6)DD MOTOR
CN4001		QGF1207C1-04	FPC CONNECTOR,(1-4)DRUM MDA
CN4002		QGB2530K1-12	CONNECTOR,(1-12)DD SLOW
Δ CN5001		QGA7901C3-02	CONNECTOR,(1-2)AC IN
CN7104		QGB2013K1-11	CONNECTOR,(1-11)TERMINAL
CN7105		QGB2013K1-13	CONNECTOR,(1-13)TERMINAL
CN7106		QGB2013K1-13	CONNECTOR,(1-13)TERMINAL
CN7162		QGF1207C1-05	FPC CONNECTOR,(1-5)JACK
Δ CP3003		ICP-N20	CIRCUIT PROTECTOR
Δ CP4001		ICP-N15	CIRCUIT PROTECTOR
Δ CP5301		ICP-N38	CIRCUIT PROTECTOR
Δ CP5302		ICP-N25	CIRCUIT PROTECTOR
Δ CP5303		ICP-N25	CIRCUIT PROTECTOR

3D SVHS BOARD ASSEMBLY <05>			
PW1		LPA10033-05C	3D SVHS BOARD ASSY
IC1001		JCP8008	IC
IC1002		VC2076MP-XE	IC
IC1006		HA118092FP1	IC
IC1007		BA10358F	IC
IC1401		JCP8010-2	IC(DIGITAL)
IC1402		MN47V77S-XE	IC
Q1004		DTC144WU	TRANSISTOR
Q1005		DTC144WU	TRANSISTOR
Q1006		2SA1576A/QRS/-X	TRANSISTOR
Q1007		2SC4081/QRS/-X	TRANSISTOR
Q1010		DTC144WU	TRANSISTOR
Q1012		2SC4081/QRS/-X	TRANSISTOR
Q1014		2SC4081/QRS/-X	TRANSISTOR
Q1015		2SC4081/QRS/-X	TRANSISTOR
Q1016		DTC144WU	TRANSISTOR
Q1021		2SA1576A/QRS/-X	TRANSISTOR
Q1022		DTC144WU	TRANSISTOR
Q1023		DTC144EU	TRANSISTOR
Q1401		2SC1317/RS/-T	TRANSISTOR
Q1402		2SC4081/QRS/-X	TRANSISTOR
Q1403		2SC4081/QRS/-X	TRANSISTOR
Q1404		2SC4081/S/-X	TRANSISTOR
Q1405		2SC4081/QRS/-X	TRANSISTOR
Q1406		2SA1576A/QRS/-X	TRANSISTOR
Q1407		2SA1576A/QRS/-X	TRANSISTOR
Q1408		2SA1576A/QRS/-X	TRANSISTOR
Q1409		2SA1576A/QRS/-X	TRANSISTOR
Q1410		2SC4081/QRS/-X	TRANSISTOR
Q1411		2SA1576A/QRS/-X	TRANSISTOR
Q1412		DTC144WU	TRANSISTOR
Q1413		DTC144WU	TRANSISTOR
Q1414		DTC144WU	TRANSISTOR
Q1416		DTC144WU	TRANSISTOR
Q1417		2SC4081/QRS/-X	TRANSISTOR

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
		or 2PC4081/R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		2SC4081/QRS/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
	D1002	1SS133	DIODE
		or 1N4148M	DIODE
	D1003	1SS133	DIODE
		or 1N4148M	DIODE
	D1004	1SS133	DIODE
		or 1N4148M	DIODE
	D1006	1SS133	DIODE
		or 1N4148M	DIODE
	D1401	RD3.9ES/B2-T2	ZENER DIODE
	D1402	1SS133	DIODE
		or 1N4148M	DIODE
	R1002	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
	R1003	NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
	R1004	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1007	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1008	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
	R1009	NRSA02J-125X	MG RESISTOR 1.2MΩ, 1/10W
	R1010	NRVA02D-332X	CMF RESISTOR 3.3kΩ, 1/10W
	R1011	NRVA02D-332X	CMF RESISTOR 3.3kΩ, 1/10W
	R1012	NRVA02D-152X	CMF RESISTOR 1.5kΩ, 1/10W
	R1013	NRVA02D-471X	CMF RESISTOR 470Ω, 1/10W
	R1014	NRVA02D-102X	CMF RESISTOR 1kΩ, 1/10W
	R1015	NRVA02D-102X	CMF RESISTOR 1kΩ, 1/10W
	R1016	NRSA02J-122X	MG RESISTOR 1.2kΩ, 1/10W
	R1017	NRSA02J-162X	MG RESISTOR 1.6kΩ, 1/10W
	R1018	NRSA02J-151X	MG RESISTOR 150Ω, 1/10W
	R1019	NRSA02J-391X	MG RESISTOR 390Ω, 1/10W
	R1020	NRSA02J-332X	MG RESISTOR 3.3kΩ, 1/10W
	R1021	NRSA02J-332X	MG RESISTOR 3.3kΩ, 1/10W
	R1023	NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
	R1025	NRSA02J-823X	MG RESISTOR 82kΩ, 1/10W
	R1026	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1027	NRSA02J-561X	MG RESISTOR 560Ω, 1/10W
	R1028	NRSA02J-561X	MG RESISTOR 560Ω, 1/10W
	R1029	NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W
	R1030	NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W
	R1031	NRSA02J-562X	MG RESISTOR 5.6kΩ, 1/10W
	R1032	NRSA02J-181X	MG RESISTOR 180Ω, 1/10W
	R1037	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1038	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
	R1039	NRSA02J-394X	MG RESISTOR 390kΩ, 1/10W
	R1045	NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
	R1046	NRSA02J-273X	MG RESISTOR 27kΩ, 1/10W
	R1047	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
	R1048	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
	R1049	NRSA02J-475X	MG RESISTOR 4.7MΩ, 1/10W
	R1053	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1054	NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
	R1055	NRVA02D-563X	CMF RESISTOR 56kΩ, 1/10W
	R1056	NRVA02D-224X	CMF RESISTOR 220kΩ, 1/10W
	R1058	NRSA02J-273X	MG RESISTOR 27kΩ, 1/10W
	R1059	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1060	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1063	NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W
	R1064	NRSA02J-332X	MG RESISTOR 3.3kΩ, 1/10W
	R1065	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
	R1066	NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
	R1067	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1068	NRSA02J-361X	MG RESISTOR 360Ω, 1/10W
	R1069	NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
	R1070	NRSA02J-391X	MG RESISTOR 390Ω, 1/10W
	R1071	NRSA02J-184X	MG RESISTOR 180kΩ, 1/10W
	R1072	NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W
	R1073	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
	R1401	NRSA02J-680X	MG RESISTOR 68Ω, 1/10W
	R1402	NRSA02J-101X	MG RESISTOR 100Ω, 1/10W
	R1403	NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
	R1404	NRSA02J-123X	MG RESISTOR 12kΩ, 1/10W
	R1405	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1406	NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
	R1407	NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
	R1408	NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
	R1409	NRSA02J-681X	MG RESISTOR 680Ω, 1/10W
	R1410	NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
	R1411	NRSA02J-243X	MG RESISTOR 24kΩ, 1/10W
	R1412	NRSA02J-104X	MG RESISTOR 100kΩ, 1/10W
	R1413	NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
	R1414	NRSA02J-331X	MG RESISTOR 330Ω, 1/10W
	R1415	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1416	NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
	R1417	NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
	R1418	NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
	R1419	NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
	R1420	NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W
	R1422	NRSA02J-391X	MG RESISTOR 390Ω, 1/10W
	R1423	NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
	R1425	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1428	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1429	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1430	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1431	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1432	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1433	NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
	R1434	NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W
	R1435	NRSA02J-242X	MG RESISTOR 2.4kΩ, 1/10W
	R1436	NRSA02J-153X	MG RESISTOR 15kΩ, 1/10W
	R1437	NRSA02J-123X	MG RESISTOR 12kΩ, 1/10W
	R1438	NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
	R1439	NRSA02J-101X	MG RESISTOR 100Ω, 1/10W
	R1440	NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
	R1442	NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W
	R1443	NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
	R1444	NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
	R1445	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1446	NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
	R1447	NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W
	R1448	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
	R1449	NRSA02J-470X	MG RESISTOR 47Ω, 1/10W
	R1451	NRSA02J-681X	MG RESISTOR 680Ω, 1/10W
	R1452	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1454	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1455	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1456	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1457	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1458	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1459	NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
	R1460	NRSA02J-104X	MG RESISTOR 100kΩ, 1/10W

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
	R1461	NRSA02J-182X	MG RESISTOR 1.8kΩ, 1/10W
	R1462	NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
	R1463	NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W
	R1465	NRSA02J-821X	MG RESISTOR 820Ω, 1/10W
	R1467	NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W
	R1468	NRSA02J-162X	MG RESISTOR 1.6kΩ, 1/10W
	R1470	NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
	R1471	NRSA02J-333X	RESISTOR 33kΩ, 1/10W
	R1472	NRSA02J-472X	RESISTOR 4.7kΩ, 1/10W
	VR1002	QVZ3521-104Z	V RESISTOR, P BURST LEVEL
	VR1401	QVP0039-103Z	TRIM RESISTOR, D/A LEVEL
	C1001	QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
	C1002	QEKJ1HM-474	E CAPACITOR 0.47μF, 50V
	C1003	QEKJ1CM-106	E CAPACITOR 10μF, 16V
	C1005	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
	C1006	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1007	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1010	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1011	NDC21HJ-150X	CAPACITOR 150pF, 50V
	C1013	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1014	QEKJ1HM-225	E CAPACITOR 2.2μF, 50V
	C1015	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
	C1016	QEKJ1HM-225	E CAPACITOR 2.2μF, 50V
	C1017	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1019	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1020	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1021	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1022	QEKJ1HM-105	E CAPACITOR 1μF, 50V
	C1023	QEKJ1HM-225	E CAPACITOR 2.2μF, 50V
	C1024	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1026	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1027	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1028	QEKJ0JM-337	E CAPACITOR 330μF, 6.3V
	C1029	QEKJ1HM-104	E CAPACITOR 0.1μF, 50V
	C1030	QEKJ1HM-105	E CAPACITOR 1μF, 50V
	C1031	QEKJ1HM-225	E CAPACITOR 2.2μF, 50V
	C1033	QEKJ1HM-105	E CAPACITOR 1μF, 50V
	C1034	QEPF1HM-105	NP E CAPACITOR 1μF, 50V
	C1035	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
	C1036	QEKJ0JM-226	E CAPACITOR 22μF, 6.3V
	C1037	QEKJ1HM-225	E CAPACITOR 2.2μF, 50V
	C1038	QEKJ1HM-225	E CAPACITOR 2.2μF, 50V
	C1039	QEKJ1CM-476	E CAPACITOR 47μF, 16V
	C1040	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1041	NDC21HG-301X	CAPACITOR 300pF, 50V
	C1042	NDC21HG-301X	CAPACITOR 300pF, 50V
	C1043	NDC21HG-221X	CAPACITOR 220pF, 50V
	C1044	NDC21HG-820X	CAPACITOR 82pF, 50V
	C1045	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1046	NDC21HG-271X	CAPACITOR 270pF, 50V
	C1047	NDC21HJ-101X	CAPACITOR 100pF, 50V
	C1048	NDC21HJ-181X	CAPACITOR 180pF, 50V
	C1049	NDC21HG-301X	CAPACITOR 300pF, 50V
	C1050	NDC21HG-301X	CAPACITOR 300pF, 50V
	C1056	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1057	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1058	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1063	NDC21HJ-101X	CAPACITOR 100pF, 50V
	C1064	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1065	QEKJ0JM-227	E CAPACITOR 220μF, 6.3V
	C1066	NCB21EK-223X	CAPACITOR 0.022μF, 25V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
	C1067	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1068	QEKJ1HM-105	E CAPACITOR 1μF, 50V
	C1069	QEKJ1CM-106	E CAPACITOR 10μF, 16V
	C1070	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1071	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1072	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1073	NDC21HJ-150X	CAPACITOR 150pF, 50V
	C1074	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1082	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1086	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1087	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1088	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1089	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1092	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1095	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1401	QEKJ1CM-336	E CAPACITOR 33μF, 16V
	C1402	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1403	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1404	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1405	NDC21HJ-220X	CAPACITOR 22pF, 50V
	C1406	NDC21HJ-8R0X	CAPACITOR 6pF, 50V
	C1407	NDC21HJ-390X	CAPACITOR 39pF, 50V
	C1408	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1409	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1410	QEKJ0JM-337	E CAPACITOR 330μF, 6.3V
	C1411	QEKJ1CM-106	E CAPACITOR 10μF, 16V
	C1412	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1413	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1414	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1415	NDC21HJ-221X	CAPACITOR 220pF, 50V
	C1416	NDC21HJ-391X	CAPACITOR 390pF, 50V
	C1417	NDC21HJ-680X	CAPACITOR 68pF, 50V
	C1418	NDC21HJ-8R0X	CAPACITOR 8pF, 50V
	C1419	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1420	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1421	NDC21HJ-680X	CAPACITOR 68pF, 50V
	C1422	NDC21HJ-330X	CAPACITOR 33pF, 50V
	C1424	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1425	QEKJ0JM-337	E CAPACITOR 330μF, 6.3V
	C1426	NCB21HK-103X	CAPACITOR 0.01μF, 50V
	C1427	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1428	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1429	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1430	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1431	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1432	QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
	C1433	NCF21EZ-104X	CAPACITOR 0.1μF, 25V
	C1434	QEKJ0JM-337	E CAPACITOR 330μF, 6.3V
	C1435	QEKJ1HM-105	E CAPACITOR 1μF, 50V

#	REF No.	PART No.	PART NAME, DESCRIPTION
C1448	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1449	QEKJ0JM-337	E CAPACITOR	330μF,6.3V
C1450	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1451	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1454	NDC21HJ-220X	CAPACITOR	22pF,50V
C1455	NDC21HJ-390X	CAPACITOR	39pF,50V
C1457	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1458	NCB21HK-103X	CAPACITOR	0.01μF,50V
C1459	NDC21HJ-470X	CAPACITOR	47pF,50V
C1460	NDC21HJ-470X	CAPACITOR	47pF,50V
C1461	NDC21HJ-470X	CAPACITOR	47pF,50V
C1462	NDC21HJ-470X	CAPACITOR	47pF,50V
C1463	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
C1464	NDC21HJ-330X	CAPACITOR	33pF,50V
C1465	NDC21HJ-470X	CAPACITOR	47pF,50V
C1468	NDC21HJ-470X	CAPACITOR	47pF,50V
C1469	NDC21HJ-470X	CAPACITOR	47pF,50V
C1470	NDC21HJ-470X	CAPACITOR	47pF,50V
C1471	NDC21HJ-470X	CAPACITOR	47pF,50V
C1472	NDC21HJ-470X	CAPACITOR	47pF,50V
C1473	NDC21HJ-470X	CAPACITOR	47pF,50V
L1001	QQL29BJ-220Z	COIL	22μH
L1004	QQL071J-680Y	COIL	68μH
L1006	QQL29BJ-101Z	COIL	100μH
L1008	QQL29BJ-100Z	COIL	10μH
L1401	QQL071J-330Y	COIL	33μH
L1402	QQL29BJ-100Z	COIL	10μH
L1404	QQL071J-8R2Y	COIL	8.2μH
L1405	QQL071J-150Y	COIL	15μH
L1406	QQL071J-6R8Y	COIL	6.8μH
L1407	QQL29BJ-100Z	COIL	10μH
L1408	QQL29BJ-100Z	COIL	10μH
L1409	QQL071J-330Y	COIL	33μH
L1410	QQL29BJ-4R7Z	COIL	4.7μH
L1411	QQL071J-1R0Y	COIL	1μH
LC1401	QQR0657-013Z	NOISE FILTER	
LC1402	QQR0657-010Z	NOISE FILTER	
SD1	LP30431-001B	S.CASE(S-VHS)	
SD2	LP30406-001A	S.PLATE(S-VHS)	
BK1	LP40077-001A	BRACKET(BOARD)	
CN1001	QGG2503K2-30	HEADER PIN	
CN1002	QGG2503K2-30	HEADER PIN	
CN1003	QGF1217F1-07	FPC CONNECTOR,(1-7)TERMINAL	

TERMINAL BOARD ASSEMBLY <06>

PW1	LPA10016-16A1	TERMINAL BOARD ASSY
IC201	LC74799-9608	IC
IC7131	BH7634AS	IC
IC7191	MM1231XF	IC
Q203	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q7131	2SA1576A/QR/-X	TRANSISTOR
Q7151	2SA1576A/QR/-X	TRANSISTOR
Q7152	2SA1576A/QR/-X	TRANSISTOR

#	REF No.	PART No.	PART NAME, DESCRIPTION
Q7191	DTC114EU	TRANSISTOR	
	or RN1302	TRANSISTOR	
	or UN5211	TRANSISTOR	
D7191	1SS133	DIODE	
	or 1N4148M	DIODE	
D7192	1SS133	DIODE	
	or 1N4148M	DIODE	
R201	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R204	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R205	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R206	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R208	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R211	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R213	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R226	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
R252	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
R253	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
R254	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R255	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
R258	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7101	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R7102	QRE141J-750Y	RESISTOR	75Ω,1/4W
R7104	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7105	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7106	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7107	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7108	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R7111	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7112	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7115	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7116	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7131	QRE141J-181Y	RESISTOR	180Ω,1/4W
R7132	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R7133	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
R7134	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
R7151	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R7152	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R7153	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R7154	NRSA02J-680X	MG RESISTOR	68Ω,1/10W
R7157	QRE123J-391X	RESISTOR	390Ω,1/2W
R7158	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R7160	QRE123J-391X	RESISTOR	390Ω,1/2W
R7161	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
R7162	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7191	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R7192	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R7193	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
R7194	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
R7195	QRE142J-563	RESISTOR	56kΩ,1/4W
R7196	QRE142J-152	RESISTOR	1.5kΩ,1/4W
C201	NDC21HJ-100X	CAPACITOR	10pF,50V
C205	NDC21HJ-470X	CAPACITOR	47pF,50V
C206	NDC21HJ-470X	CAPACITOR	47pF,50V
C207	NCB21CK-224X	CAPACITOR	0.22μF,16V
C209	NCB21CK-224X	CAPACITOR	0.22μF,16V
C211	QEKJ1HM-105	E CAPACITOR	1μF,50V
C213	QEKJ1HM-105	E CAPACITOR	1μF,50V
C215	QEKJ0JM-227	E CAPACITOR	220μF,6.3V
C219	NCB21CK-224X	CAPACITOR	0.22μF,16V
C221	NDC21HJ-330X	CAPACITOR	33pF,50V
C251	NCB21EK-104X	CAPACITOR	0.1μF,25V

#	REF No.	PART No.	PART NAME, DESCRIPTION
C252	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C253	NCB21CK-224X	CAPACITOR	0.22μF,16V
C254	QEKJ0JM-227	E CAPACITOR	220μF,6.3V
C255	NCB21EK-333X	CAPACITOR	0.033μF,25V
C256	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C258	NDC21HJ-560X	CAPACITOR	56pF,50V
C7101	NCB21HK-681X	CAPACITOR	680pF,50V
C7102	NCB21HK-681X	CAPACITOR	680pF,50V
C7105	NCB21HK-102X	CAPACITOR	0.001μF,50V
C7106	NCB21HK-102X	CAPACITOR	0.001μF,50V
C7110	NCB21HK-681X	CAPACITOR	680pF,50V
C7111	NCB21HK-681X	CAPACITOR	680pF,50V
C7119	NCB21HK-102X	CAPACITOR	0.001μF,50V
C7120	NCB21HK-102X	CAPACITOR	0.001μF,50V
C7131	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C7132	QEKJ1CM-476	E CAPACITOR	47μF,16V
C7133	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7134	NCB21HK-223X	CAPACITOR	0.022μF,50V
C7135	NCB21HK-223X	CAPACITOR	0.022μF,50V
C7136	NCB21HK-223X	CAPACITOR	0.022μF,50V
C7137	NCB21HK-223X	CAPACITOR	0.022μF,50V
C7138	NDC21HJ-330X	CAPACITOR	33pF,50V
C7139	NDC21HJ-330X	CAPACITOR	33pF,50V
C7140	NDC21HJ-330X	CAPACITOR	33pF,50V
C7141	NDC21HJ-330X	CAPACITOR	33pF,50V
C7151	QETA0JM-477	E CAPACITOR	470μF,6.3V
C7153	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7154	QEKJ1CM-476	E CAPACITOR	47μF,16V
C7155	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7156	QCB1HK-101	CAPACITOR	100pF,50V
C7157	NDC21HJ-101X	CAPACITOR	100pF,50V
C7191	QEKJ1CM-107	E CAPACITOR	100μF,16V
C7192	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7193	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7194	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7195	QEKJ1CM-106	E CAPACITOR	10μF,16V
C7196	QEKJ1CM-106	E CAPACITOR	10μF,16V
C7197	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7198	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7199	NCB21HK-103X	CAPACITOR	0.01μF,50V
L202	QQL29BJ-330Z	COIL	33μH
L204	QQL29BK-1R0Z	COIL	1μH
L206	QQL231J-1R0Y	COIL	1μH
L251	QQL231J-100Y	COIL	10μH
L252	QQL231J-220Y	COIL	22μH
L7101	QQL231J-R22Y	COIL	0.22μH
L7102	QQL231J-4R7Y	COIL	4.7μH
L7103	QQL231J-4R7Y	COIL	4.7μH
L7104	QQL231J-4R7Y	COIL	4.7μH
L7105	QQL231J-4R7Y	COIL	4.7μH
L7106	QQL231J-1R0Y	COIL	1μH
L7107	QQL231J-4R7Y	COIL	4.7μH
L7108	QQL231J-4R7Y	COIL	4.7μH
L7112	QQL231J-4R7Y	COIL	4.7μH
L7113	QQL231J-4R7Y	COIL	4.7μH
L7132	QQL231J-1R0Y	COIL	1μH
L7133	QQL231J-1R0Y	COIL	1μH
L7134	QQL231J-1R0Y	COIL	1μH
L7135	QQL231J-1R0Y	COIL	1μH
SW7151	QSW0693-001	SLIDE SWITCH	
ET1	PQ21987-1-1	EATH PLATE(TERMINAL)	

#	REF No.	PART No.	PART NAME, DESCRIPTION
TB1	LP30361-011A	TERMINAL BOARD ASSY	
OT1	QYTD5F3008Z	SCREW,X8	
J7101	PEMC1177	RGB21PIN SOCKET,A/V 1	
J7102	PEMC1177	RGB21PIN SOCKET,A/V 2	
J7103	QNN0021-002	PIN JACK,AUDIO OUT(R)	
J7104	QNN0021-003	PIN JACK,AUDIO OUT(L)	
J7105	PEMC1190	MINI JACK,JLIP	
J7152	QND0010-001	S JACK,S OUT	
CN7101	QGB2013J1-13	CONNECTOR,(1-13)MAIN	
CN7102	QGB2013J1-13	CONNECTOR,(1-13)MAIN	
CN7103	QGB2013J1-11	CONNECTOR,(1-11)MAIN	
CN7151	QGF1208F1-07	FPC CONNECTOR,(1-7)3D SVHS	
CN7191	QGF1208F1-04	FPC CONNECTOR,(1-4)JACK	

AUDIO CNTROL HEAD BOARD ASSEMBLY <12>

PW1	LPA10010-01A1	A/C HEAD BOARD ASSY
CN1	QGF1208F1-07	FPC CONNECTOR

DEMOD BOARD ASSEMBLY <14>

PW1	LPA10021-01A	DEMOD BOARD ASSY	
IC6701	MSP3415D	IC	
Q6701	2SC3068	TRANSISTOR	
Q6702	2SC3354/TS-T	TRANSISTOR	
Q6704	DTC114EU	TRANSISTOR	
Q6705	DTC114EU	TRANSISTOR	
D6702	MTZJ9.1B	ZENER DIODE	
D6703	1N4148M	DIODE	
	or 1SS133	DIODE	
D6704	1N4148M	DIODE	
	or 1SS133	DIODE	
R6701	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R6702	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R6703	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
R6704	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R6705	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R6706	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
R6707	NRSA02J-470X	MG RESISTOR	47Ω,1/10W
R6708	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R6709	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
R6710	NRSA02J-151X	MG RESISTOR	150Ω,1/10W
R6712	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R6713	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R6714	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R6715	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R6716	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R6717	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R6718	NRSA02J-684X	MG RESISTOR	680kΩ,1/10W
C6703	QEKJ1CM-336	E CAPACITOR	33μF,16V
C6704	QEKJ1CM-107	E CAPACITOR	100μF,16V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
C6705		NCB21HK-103X	CAPACITOR	0.01μF,50V
C6706		NCB21HK-223X	CAPACITOR	0.022μF,50V
C6707		NCB21HK-103X	CAPACITOR	0.01μF,50V
C6708		NCB21HK-103X	CAPACITOR	0.01μF,50V
C6709		QEKJ1CM-336	E CAPACITOR	33μF,16V
C6710		NCB21HK-682X	CAPACITOR	0.0068μF,50V
C6711		NCB21HK-682X	CAPACITOR	0.0068μF,50V
C6712		QEKJ1HM-225	E CAPACITOR	2.2μF,50V
C6713		QEKJ1HM-225	E CAPACITOR	2.2μF,50V
C6714		NCF21CZ-224X	CAPACITOR	0.22μF,16V
C6717		NCB21HK-223X	CAPACITOR	0.022μF,50V
C6718		QEKJ1CM-336	E CAPACITOR	33μF,16V
C6719		QEKJ1CM-106	E CAPACITOR	10μF,16V
C6720		QEKJ1CM-106	E CAPACITOR	10μF,16V
C6721		NCB21HK-103X	CAPACITOR	0.01μF,50V
C6722		QEKJ1CM-106	E CAPACITOR	10μF,16V
C6723		NCB21HK-103X	CAPACITOR	0.01μF,50V
C6727		NDC21HJ-470X	CAPACITOR	47pF,50V
C6728		NDC21HJ-470X	CAPACITOR	47pF,50V
C6729		NDC21HJ-8R0X	CAPACITOR	8pF,50V
C6730		NDC21HJ-1R0X	CAPACITOR	1pF,50V
L6701		QQL29BK-1R0Z	COIL	1μH
L6702		QQL29BJ-3R3Z	COIL	3.3μH
L6703		QQL231J-680Y	COIL	68μH
L6704		QQL29BK-1R0Z	COIL	1μH
L6705		QQL231J-221Y	COIL	220μH
LC6701		QQR0657-013	NOISE FILTER	
X6701		QAX0443-001	CRYSTAL RESONATOR	
BK1		LP40077-001A	BRACKET(BOARD)	
CN6701		QGG2502K1-11	HEADER PIN,(1-11)MAIN	

SPATIALIZER BOARD ASSEMBLY <24>

PW1	LPA10022-01A	SPATIALIZER BOARD ASSY
IC2701	AN7395S	IC
Q2701	2SC4081/QRS/-X	TRANSISTOR
D2701	MTZJ10B	ZENER DIODE
R2701	NRSA02J-105X	MG RESISTOR
R2702	NRSA02J-472X	MG RESISTOR
R2703	NRSA02J-122X	MG RESISTOR
R2705	NRSA02J-223X	MG RESISTOR
R2706	NRSA02J-0R0X	MG RESISTOR
R2707	NRSA02J-101X	MG RESISTOR
R2708	NRSA02J-221X	MG RESISTOR
R2709	NRSA02J-223X	MG RESISTOR
C2701	QEKJ1CM-106	E CAPACITOR
C2702	QEKJ1CM-106	E CAPACITOR
C2703	QEKJ0JM-226	E CAPACITOR
C2704	QEKJ0JM-226	E CAPACITOR
C2705	NCB21HK-563X	CAPACITOR
C2706	NCB21HK-393X	CAPACITOR
C2707	QEKJ1CM-106	E CAPACITOR
C2708	QEKJ1CM-106	E CAPACITOR
C2710	NCB21HK-103X	CAPACITOR
C2711	NCB21HK-273X	CAPACITOR
C2712	QEKJ1CM-106	E CAPACITOR

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
C2713		QEKJ1CM-476	E CAPACITOR	47μF,16V
C2716		QEKJ1CM-476	E CAPACITOR	47μF,16V
CN2702		QGG2502K1-08	HEADER PIN,(1-8)MAIN	

SW/DISPLAY BOARD ASSEMBLY <28>

PW1	LPA10031-06B1	DISPLAY BOARD ASSY
IC7001	M35500BFP	IC
	or M35500AGP	IC
	or M35500BGP	IC
IC7002	PNA4652M00XB	IR DETECT UNIT
	or GP1U281X	IR DETECT UNIT
D7002	RD9.1ES/B2/-T2	ZENER DIODE
	or MTZJ9.1B	ZENER DIODE
	or UZ9.1BSB	ZENER DIODE
D7004	1N4148M	DIODE
	or 1SS133	DIODE
D7005	1N4148M	DIODE
	or 1SS133	DIODE
D7009	SLR-342MC3F	LE DIODE
D7010	SLR-342VC3F	LE DIODE
R7001	QRE141J-471Y	RESISTOR
R7002	QRE141J-471Y	RESISTOR
R7003	QRE141J-471Y	RESISTOR
R7004	QRE141J-471Y	RESISTOR
R7005	QRE141J-103Y	RESISTOR
R7006	QRE141J-103Y	RESISTOR
R7007	QRE141J-103Y	RESISTOR
R7008	QRE141J-103Y	RESISTOR
R7013	QRE141J-103Y	RESISTOR
R7014	QRE141J-470Y	RESISTOR
R7020	QRE141J-103Y	RESISTOR
R7021	QRE141J-122Y	RESISTOR
R7022	QRE141J-182Y	RESISTOR
R7023	QRE141J-222Y	RESISTOR
R7024	QRE141J-272Y	RESISTOR
R7025	QRE141J-472Y	RESISTOR
R7026	QRE141J-682Y	RESISTOR
R7027	QRE141J-153Y	RESISTOR
R7028	QRE141J-393Y	RESISTOR
R7030	QRE141J-103Y	RESISTOR
R7031	QRE141J-122Y	RESISTOR
R7032	QRE141J-182Y	RESISTOR
R7033	QRE141J-222Y	RESISTOR
R7034	QRE141J-272Y	RESISTOR
R7035	QRE141J-472Y	RESISTOR
R7036	QRE141J-682Y	RESISTOR
R7037	QRE141J-153Y	RESISTOR
R7038	QRE141J-393Y	RESISTOR
R7040	QRE141J-331Y	RESISTOR
R7041	QRE141J-331Y	RESISTOR
C7001	QDV81EZ-223Y	CAPACITOR
C7002	QETC1HM-106	E CAPACITOR
C7007	QEKCOJM-476	E CAPACITOR
C7009	QCSB1HJ-150	CAPACITOR
C7010	QCFB1HZ-104	CAPACITOR

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
C7011		QETCOJM-337	E CAPACITOR	330μF,8.3V
C7013		QDYB1CM-103Y	CAPACITOR	0.01μF,16V
C7014		QDYB1CM-103Y	CAPACITOR	0.01μF,16V
C7019		QDV81EZ-223Y	CAPACITOR	0.022μF,25V
S7001		QSW0456-002Z	TACT SWITCH,POWER	
S7002		QSW0456-002Z	TACT SWITCH,CH+	
S7003		QSW0456-002Z	TACT SWITCH,CH-	
S7004		QSW0456-002Z	TACT SWITCH,REC	
S7005		QSW0456-002Z	TACT SWITCH,PAUSE	
S7006		QSW0456-002Z	TACT SWITCH,PLAY	
S7007		QSW0456-002Z	TACT SWITCH,STOP/EJECT	
S7008		QSW0456-002Z	TACT SWITCH,FF	
S7009		QSW0456-002Z	TACT SWITCH,REW	
S7011		QSW0456-002Z	TACT SWITCH,SPATIALIZER	
S7012		QSW0456-002Z	TACT SWITCH,INSERT	
S7013		QSW0456-002Z	TACT SWITCH,ST BOX	
S7014		QSW0456-002Z	TACT SWITCH,TBC	
S7015		QSW0456-002Z	TACT SWITCH,A.DUB	
D17001		QLF0032-002	FL TUBE	
HD1		LP30428-001A	FDP HOLDER(L),D17001	
HD2		LP30429-001A	FDP HOLDER(R),D17001	
HD3		PQM30038-6	LED HOLDER,D7009	
FW7001		PW30101-60AA442	PARALLEL WIRE	
CN7001		QGF1207C1-12	FPC CONNECTOR,(1-12)MAIN	

REC SAFETY BOARD ASSEMBLY <32>

PW2	LPA10031-01B2	REC SAFETY BOARD ASSY
S7041	QSW0802-002	PUSH SWITCH

JACK BOARD ASSEMBLY <36>

PW1	LPA10031-01B3	JACK BOARD ASSY
R7192	QRE141J-0R0Y	RESISTOR
C7192	QCB81HJ-681	CAPACITOR
C7194	QCB81HJ-681	CAPACITOR
L7191	QRE141J-101Y	RESISTOR
L7192	QRE141J-101Y	RESISTOR
J7191	PEMC1126	PIN JACK,VIDEO IN
J7192	PEMC0922	PIN JACK(SW),VIDEO IN
J7193	PEMC0922	PIN JACK(SW),AUDIO(L)IN
J7194	QND0010-001	S JACK, S IN
CN7191	QGF1207F1-05	FPC CONNECTOR,(1-5)
CN7192	QGF1207F1-04	FPC CONNECTOR,(1-4)

#	△ REF No.	PART No.	PART NAME, DESCRIPTION

LOADING MOTOR BOARD ASSEMBLY <55>			
PW2	LPA10010-01A2	LOADING MOTOR BOARD ASSY	
CN1	QGB2533K1-02	CONNECTOR	

VSC BOARD ASSEMBLY <72>

PW1	PB10995C	VSC BOARD ASSY
IC2501	LC85405E	IC
	or LC85405NE	IC
Q2501	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q2502	UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
	or DTC144WU	TRANSISTOR
D2501	1N4148M	DIODE
	or 1SS133	DIODE
R2501	NRSA02J-102X	MG RESISTOR
R2502	NRSA02J-472X	MG RESISTOR
R2503	NRSA02J-104X	MG RESISTOR
R2504	NRSA02J-472X	MG RESISTOR
R2505	NRSA02J-105X	MG RESISTOR
R2506	NRSA02J-473X	MG RESISTOR
R2507	NRSA02J-102X	MG RESISTOR
R2508	NRSA02J-333X	MG RESISTOR
R2509	NRSA02J-103X	MG RESISTOR
R2510	NRSA02J-102X	MG RESISTOR
R2511	NRSA02J-154X	MG RESISTOR
R2512	NRSA02J-102X	MG RESISTOR
R2513	NRSA02J-102X	MG RESISTOR
R2514	NRSA02J-472X	MG RESISTOR
R2515	NRSA02J-0R0X	MG RESISTOR
R2516	NRSA02J-0R0X	MG RESISTOR
R2518	NRSA02J-102X	MG RESISTOR
R2519	NRSA02J-102X	MG RESISTOR
R2520	NRSA02J-101X	MG RESISTOR
R2521	NRSA02J-472X	MG RESISTOR
R2522	NRSA02J-682X	MG RESISTOR
C2501	QEKJ0JM-107	E CAPACITOR
C2502	NCB21HK-562X	CAPACITOR
C2503	QEKJ1HM-105	E CAPACITOR
C2505	QEKJ0JM-107	E CAPACITOR
C2506	NCB21HK-103X	CAPACITOR
C2507	QEKJ1CM-226	E CAPACITOR
C2508	NCB21HK-103X	CAPACITOR
C2509	QEKJ1CM-106	E CAPACITOR
C2510	QEKJ1CM-476	E CAPACITOR
C2511	NCB21HK-222X	CAPACITOR
C2512	NDC21HJ-331X	CAPACITOR
C2513	NCB21HK-103X	CAPACITOR
C2518	NCB21HK-102X	CAPACITOR
C2519	NCB21HK-103X	CAPACITOR

△ REF No.	PART No.	PART NAME, DESCRIPTION	# △ REF No.	PART No.	PART NAME, DESCRIPTION
L2501	QQL242J-2R2Z	COIL	2.2μH		
LPF2501	PELN1137	LOW PASS FILTER			
CF2501	QAX0399-001Z	RESONATOR			
LC2501	QQL29BJ-470Z	COIL			
CN2501	QGG2502K1-09	HEADER PIN,(1-9)MAIN			

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DD SLOW BOARD ASSEMBLY <78>

PW2	LPA10016-01A2	DD SLOW BOARD ASSY	
IC4101	BA10324AF-XE	IC	
	or UPC324G	IC	
IC4102	TC4S30F	IC	
IC4103	BU4066BCF	IC	
Q4101	UN521E	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or DTC144WU	TRANSISTOR	
Q4102	UN521E	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or DTC144WU	TRANSISTOR	
D4101	DA204U	DIODE	
D4103	DAN202U	DIODE	
D4104	1SS133	DIODE	
	or 1N4148M	DIODE	
D4105	1SS133	DIODE	
	or 1N4148M	DIODE	
R4101	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R4102	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
R4103	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4104	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4105	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
R4106	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4107	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4108	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R4109	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R4110	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4114	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4115	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
C4101	NCB21CK-224X	CAPACITOR	0.22μF,16V
C4102	QERF1CM-106	E CAPACITOR	10μF,16V
C4103	NCB21HK-103X	CAPACITOR	0.01μF,50V
C4105	NCB21EK-563X	CAPACITOR	0.056μF,25V
CN4101	QGB2530J1-12	CONNECTOR,(1-12)MAIN	